
Sustainable Procurement Best Practice Recommendations

for

The City of Saint Paul - HREEO

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The Most Livable
City in America



**Saint Mary's University
MBA750 Capstone Project**

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Summary

Project Background

The City of Saint Paul (the City) has taken a great initiative of changing their old pen and paper based procurement process to an innovative Enterprise Resource Planning system to create a cost effective and sustainable procurement process. During this time of transformation, the City has recognized the need for assessing the current procurement practices that are taking place in different departments and come up with better strategy for procurement. In order to accomplish these goals the City has partnered with Saint Mary's University of Minnesota Capstone class. The students have contributed their best effort to come up with cost effective and sustainable strategy to provide value to the residence of Saint Paul.

Scope

The project aims to provide recommendations and best practices for sustainable and cost effective procurement process for Saint Paul Regional Water Services (SPRWS), Cell Phone, Training Contract and Feasibility of Performance Based Contracts. The scope of this project is to perform a thorough analysis on the current procurement process based on the available data provided by the City. The analysis will include evaluating the Strengths, Weaknesses, Opportunities and Threats (SWOT). By identifying internal and external aspects that are both favorable and unfavorable to achieving the objective, this will help the students determine if the selected objective is obtainable. This project focuses on providing recommendations to improve the procurement process in terms of cost and quality upon analysis of the current process and providing industry standard best practices upon thorough research of the successful best practices.

Deliverables

The students will provide for the city an assessment and recommendations in the areas identified above. A final research paper will be provided to the City on December 18, 2009, and a presentation will be given to help communicate this information.

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Cell Phone Procurement

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Purpose

This portion of the document concentrates on the cell phone procurement along with the eligibility and access to wireless services in different departments throughout the City. Participation in a wireless plan is reserved for employees with a need for wireless communication for business purposes and is subject to management approval. It covers all telecommunications and connectivity devices, including but not limited to cellular telephones, data devices including BlackBerry, data cards communication services and accessories.

Process Overview

The following Process Overview provides relevant information related to the current cell phone procurement practices within the City. The City as a whole spends approximately \$700,000 annually on costs surrounding cell phones or data devices. These costs are from a total of 912 plans for the employees who are carrying cell phones. This overview will serve as our baseline for further analysis.

Contracts

The City uses Master Contracts with the procurement of cell phone purchases. A Master Contract is a contract for specific products or services purchased frequently by a number of departments during the year. The contract sets the pricing and terms for the given products for the lifetime of the contract. The buyer establishes the master contract. The buyer pursues the contract based on the needs of the various departments. Master Contracts are often established on a yearly basis. The Master Contracts that have been established for the City's cell phones vary in length with the majority of them being three (3) years in length. It is not up to Contracts and Analysis Services to determine any limitations for the departments in regards to their own policies. The limitations and internal controls are established within the departments.

Departmental Policies

We have reviewed the data provided by the City and the City's existing policy which was published in August 1, 2001 in the City's website in the following link <http://www.stpaul.gov/index.aspx?NID=1109>. We found that there is not an overall policy established by the City. Each department within the City has their own specific guidelines that are expected to be followed. In a study conducted by Angie Nalezny and Alicia Gilbert of the Human Resources department for the City, it has been determined that there are various issues within each department. We will provide a brief synopsis of how six (6) departments handle and monitor their respective cell phone policies. These departments are IT, Police, Water, DSI, Public Works, and Parks & Recreation.

IT Department

- 37 phones
- Recently updated cell phone policy:
- Pooling of departmental minutes
- Field techs are issued cell phones
- Help desk employees and server administrators rotate "on-call" phones
- Use Blackberries and Trios using the Nextel and Sprint provider
 - Need to pick up emails and work orders
 - Plans have unlimited data

Police Department

- 215 phone and 375 data devices for the laptops in the squad cars.
- No written policy in place
- Pooling of departmental minutes
- All Commanders receive cell phone plans
 - Must be approved by Assistant Chief
 - Plans are usually \$200 per plan
 - Includes texting
 - No control on texting
 - Some employees reimburse for personal usage but there is not a set policy

Water Department

- 127 phones and an additional 30 laptop computer card plans.
- Pooling of minutes
 - Increase the plan during the construction season
- Required monthly approval of monthly individual bills
- Allowance of 60 minutes of personal usage

DSI Department

- 147 phones
- Eligible employees
 - Inspectors
 - Managers
 - Employees who need 2 way direct connect
- Pooled minutes
- Allowance of 30 minutes of personal usage
 - No reimbursement for personal phone usage
 - Limited abuse of this policy

Public Works Department

- 133 phones
- Eligible employees
 - Crew leaders
 - End Street Maintenance
 - Electricians
- Pooled minutes among the three divisions
- Allowance of 30 minutes of personal usage
 - Employees can purchase more minutes
- Review of bills and questioning of overages

Parks & Recreation Department

- 180 phones
- Eligible employees
 - Managers
 - Blackberry devices
 - Supervisors and above
 - Some coordinators
- Pooled minutes

- Itemized bill for each phone
 - Employees specify which calls are personal use
 - Reimburse at \$0.30 per minute

As can be determined by looking at the above information, there are varying policies whether written or unwritten between the departments. This current process has caused various problems both in managing the use of cell phones as well as a loss of potential cost savings the City is looking to being able to realize.

Analysis

After consideration of the current cell phone practices and behaviors being used at the City, the following SWOT analysis was created to summarize the most critical points. Understanding the most important facts about the City's current situation will allow for a more efficient and helpful comparison of other organizations' behaviors, and will lead to recommendations that add more value to the City.

Strengths

Decentralized policies

Currently each department is making cell phone device decisions on an individual basis and employees are able to get plans they need. Each department can follow their own criteria when deciding which employees require a cell phone and which plan they receive. This allows for departmental adaptability to employee needs.

Purchasing power

Certain departments within the City are currently pooling minutes. This helps to reduce overage charges and reduces costs overall.

Administration

Because the City does not spend time tracking individual policies each month employees are able to spend more time on daily activities. Management is not expected to review these statements and can focus more on other tasks.

Weaknesses

Cost

Due to the lack of a consistent citywide policy, departments are making their own decisions on cell phone procurement. This reduces the ability to take advantage of purchasing power for the City overall. Also, because there is no open bidding among the cell phone carriers, there is no incentive for providers to offer competitive plans at low cost to the City.

Policy

There is no citywide policy for cell phone procurement. Individual departments have enacted their own practices, as they seem appropriate for their needs. There is no centralized direction for personal and business use of cell phones and if or how the City should be reimbursed to compensate. There is no direction or limit to plan options that employees have available as currently employees choose their own plan from any provider. The City does not provide individual statements and is unable to identify personal use by employees.

Monitoring and controlling

Employees of the City do not receive individual cell phone statements. As a result the employee may not be completely aware of the extent to which their personal use behavior affects the City.

They are not consistently expected to monitor their minutes used and thus the City cannot effectively monitor and control the costs associated with these devices. Management is not expected to audit this system, and as a result, abuse may go unnoticed within the City.

Opportunities

Increased oversight

The City does not consistently audit, monitor, and control cell phone use. The City can work with cell phone service providers to furnish individual statements. This will allow them to better track and control service use and costs, as well as provide transparency and the ability to set and meet goals for cell phone procurement. Auditing and monitoring could lead to huge savings by discovering and reducing waste as the City grows and changes. Continuous improvement is a necessity as needs change over time.

Sustainable procurement

The City does not currently have a focus on sustainable procurement practices for cell phones and there is a lot of opportunity to change. Sustainable procurement is about incorporating sustainability principles into procurement decisions by taking into account the environmental and social factors while still obtaining value for money. Procurement decisions should consider the whole life cycle of the product. This includes the entire supply chain. The purchase of environmentally responsible cell phones is important. As regulations change to protect the environment, more cell phone manufacturing companies are being driven to design more environmentally friendly cell phones and accessories. The City may also consider policies for reusing cell phones internally and recycling cell phones at end of life.

Implementation of Citywide Policy

It is important for any organization to have a policy that incorporates all employees and departments so that activities are focused on alignment with high-level strategies and objectives. Deviations from a policy, or a lack thereof, can detract from the value that the organization strives to provide. A Citywide policy would allow the City to; streamline procedures, communicate employee expectations, enforce personal/business use behaviors, and reduce costs.

Cost Savings

Currently, because there are so many different cell phone plans and devices being used within each department, the City has the opportunity to reduce costs by condensing the number of different plans allowed, and taking advantage of minute pooling. With all departments working together, the City may realize greater savings by leveraging purchasing power from the use of single source supply. Also, a reduction in plans, devices, and providers would help to reduce costs associated with internal management. Implementation of centralized purchasing procedures could further reduce costs.

Threats

Policy

The lack of an effective and consistent policy across the board leads to inefficient use of resources and greater costs. Personal usage is not controlled and Individuals may abuse the system by getting unneeded plans and devices. Individual departments may not consider alignment with City strategies and objectives.

Organizational Behavior

Change for any organization is difficult. Participants may be opposed because a change in policy may adversely affect them or because they are better aligned to work with the current policy.

Departments as a whole may be opposed to changing their practices as they may not fully understand the reasons and needs for changing.

Resources

The City may lack the resources to effectively monitor and control cell phone usage on a regular basis. There may be no resources available to research and procure the most cost effective suppliers, and management may not be able to consistently provide departmental oversight to individual plans to insure compliance. For this reason, the City may be dependent on providers for service costs and fees.

Cost Analysis and Savings

Following cost analysis section has three different parts- department-wide pooling analysis, City Wide Pooling Analysis and Flat Rate Pricing Analysis.

Cost Savings Analysis – Projected Savings

<u>Departmental Pooling Analysis</u>							
Current Information Gathered by City of Saint Paul's Human Resources Department				Departmental Pooling Analysis			
	Phones	Blackberry	Monthly Costs	300 minutes per phone	Sprint/Nextel Pooling	Alltel Pooling	Verizon Pooling
City Attorney	2	5	\$ 361	2,100	\$ 217	\$ 280	\$ 210
Council	3	8	688	3,300	277	440	329
DSI	131	7	4,116	41,400	3,307	5,519	4,133
Fire	13	10	734	6,900	570	920	689
HR	0	3	150	900	90	120	90
Human Rights	0	1	50	300	45	40	30
Info. Systems	25	38	2,986	18,900	1,507	2,519	1,887
Library	4	9	608	3,900	307	520	389
OFS	0	4	150	1,200	120	160	120
Parks & Rec.	131	19	5,829	45,000	3,600	5,999	4,493
PED	3	4	310	2,100	217	280	210
Police	141	36	30,369	53,100	2,767	7,078	5,301
Public Works	115	9	5,410	37,200	2,985	4,959	3,714
Water	152	4	4,940	46,800	3,690	6,238	4,672
Misc.	21	0	1,768	6,300	540	840	629
	741	157	58,469		20,242	35,911	26,895
				Blackberry w data/access	10,007	5,487	3,140
				Laptop connect	12,146	20,230	15,791
					42,395	61,628	45,826
					12	12	12
					508,740	739,535	549,913
current estimated cost - annual			\$ 701,628	potential savings	\$ 192,888	\$ (37,907)	\$ 151,715

Summary of Departmental Pooling Analysis:

The analysis of the Depart Wide Pooling takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unice, and Verizon). The analysis used data arrived from the following sources: information gathered by the City of Saint Paul's Human Resources Department and from the contracts of the four various carriers.

Sprint/Nextel offers five different pooling plans: 400 minutes for \$29.99/month, 1000 minutes for \$44.99/month, 1400 minutes for \$59.99/month, 2000 minutes for \$74.99/month and 4000 minutes for \$112.49/month. The Blackberry phones will also incur monthly access as well as data usage fees. With a phone plan this cost is \$63.74 per Blackberry and would cost the City \$120,086 annually. The last charge is in relation to the connection of the 405 laptops and "pocketcops" for the City's police force. This cost is \$30 per month for 40MB. The total cost of

Sprint/Nextel would be \$508,740, which is a savings of \$192,888 from the original estimated cost of \$701,628.

Alltel does not offer a group pooling rate, therefore is the city would want to take advantage of the pooling it would still need to manage the plans for each of the phones. If a phone is to be used in a pooling plan than there is a monthly cost of \$39.99 and each phone receives a 600-minute allowance. In total this would be \$430,932 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Alltel charges a fee of \$34.95 per Blackberry and would cost the City \$65,846 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$50 per month for 40MB. The total cost of Alltel would be \$739,535 for an increased cost of \$37,907 from the original estimated cost of \$701,628.

Verizon has a pooling plan that has a standard plan rate of \$27.99 and an added fee of \$2 per phone if that phone is participating in a pooling of minutes. With Verizon each phone would have an allowance of 300 minutes. The annual cost to receive this option for each of the 898 phones would be \$322,740. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$549,913 for an annual savings of \$151,715 from the original estimated cost of \$701,628.

City Wide Pooling Analysis

Current Information Gathered by City of Saint Paul's Human Resources Department

Total Cell Phones	741	current estimated cost	\$	701,628
Total Blackberrys	157			
Total phones	898			

City Wide Pooling Analysis

	Minutes per month	Sprint/Nextel	Alltel	Unicel	Verizon
300 minutes per phone	269400				
# of max minute pooling plans	68	4000 pooling plan	600 min./line/all pooled	no pooling	300 minutes
cost of minute pooling plan		\$ 91,792	\$ 430,932		323,172
each additional line	\$ 15	161,640			-
Blackberry with data/access		120,086	65,846		37,680
Laptop connect		145,751	242,757		189,491
		<u>\$ 519,269</u>	<u>\$ 739,535</u>		<u>\$ 550,344</u>
potential savings		\$ 182,359	\$ (37,907)		\$ 151,284

Summary of City Wide Pooling Analysis:

The analysis of the City Wide Pooling takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unicel, and Verizon). The analysis used data arrived from the following sources: information gathered by the City’s Human Resources Department and from the contracts of the four different carriers.

Sprint/Nextel offers a 4,000 minute pooling plan at a per plan cost of \$112.49/month. To cover all of the phones with a 300-minute allowance per phone, the City would need a total of 68 different plans. The cost for these plans would be \$91,792 annually. To put the phones into a pooling plan Sprint/Nextel also charges \$15 per line which would be an annual cost of \$161,640. The Blackberry phones will also incur monthly access as well as data usage fees. With a phone plan this cost is \$63.74 per Blackberry and would cost the City \$120,086 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$30 per month for 40MB. The total cost of Sprint/Nextel would be \$519,269, which is a savings of \$182,359 from the original estimated cost of \$701,628.

Alltel does not offer a group pooling rate, therefore is the city would want to take advantage of the pooling it would still need to manage the plans for each of the phones. If a phone is to be used in a pooling plan than there is a monthly cost of \$39.99 and each phone receives a 600-minute allowance. In total this would be \$430,932 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Alltel charges a fee of \$34.95 per Blackberry and would cost the City \$65,846 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$50 per month for 40MB. The total cost of Alltel would be \$739,535 for an increased cost of \$37,907 from the original estimated cost of \$701,628.

Verizon has a pooling plan that has a standard plan rate of \$27.99 and an added fee of \$2 per phone if that phone is participating in a pooling of minutes. With Verizon each phone would have an allowance of 300 minutes. The annual cost to receive this option for each of the 898 phones would be \$323,172. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$550,344 for an annual savings of \$151,284 from the original estimated cost of \$701,628.

Flat Rate Pricing Analysis

Current Information Gathered by City of Saint Paul's Human Resources Department

Total Cell Phones	741	current estimated cost	\$ 701,628
Total Blackberrys	<u>157</u>		
Total phones	<u>898</u>		

Flat Rate Pricing

	Sprint/Nextel		Alltel		Unicel		Verizon
cost per line	\$ 10.50	\$	7.00	\$	11.00	\$	27.99
cost for phone lines	113,148		75,432		118,536		301,620
\$.08/minute @300 minutes/phone	258,624		258,624		258,624		
nights & weekends	40,410		53,880	included		included	
mobile to mobile	40,410		107,760	included		included	
Unlimited data usage	N/A		N/A		65,940	N/A	
Blackberry with data/access w/40MB	120,086		65,846		-		37,680
Laptop connect	145,751		242,757		223,560		189,491
	<u>\$ 718,440</u>	\$	<u>804,306</u>	\$	<u>666,671</u>	\$	<u>528,820</u>
potential savings	\$ (16,812)	\$	(102,678)	\$	34,957	\$	172,808

Summary of Flat Rate Pricing Analysis:

The flat rate pricing analysis takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unicel, and Verizon). The analysis used data arrived from the following sources: information gathered by the City of Saint Paul's Human Resources Department and from the contracts of the four various carriers.

Sprint /Nextel has a charge of \$10.50 per line. This would result in a cost of \$113,148 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unlike the pooled minute options, which include the basic features such as nights & weekends and mobile-to-mobile, flat rate pricing charges more for these options. Sprint/Nextel charges \$3.73 for each option and to have both of these options on all phones would cost the City \$40,410 per option annually. The same costs for data and access on the Blackberry phones as well at the laptop connections would be the same as the pooling options and would annually cost \$120,086 and \$145,751 respectively. The total cost of Sprint/Nextel would be \$718,440 for an increased cost of \$16,812 from the original estimated cost of \$701,628.

Alltel charges \$7 per line. This would result in a cost of \$75,432 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unlike the pooled minute options, which include the basic features such as nights & weekends and mobile-to-mobile, flat rate pricing charges more for these options. Alltel charges \$5 for nights & weekends and \$10 for mobile to mobile. These costs would be \$53,880 for nights and weekends and \$107,760 for mobile to mobile if each phone were to have the options. The same costs for data and access on the Blackberry phones as well at the laptop connections would be the same as the pooling options and would annually cost

\$65,846 and \$242,757 respectively. The total cost of Alltel would be \$804,306 for an increased cost of \$102,678 from the original estimated cost of \$701,628.

Unicel charges \$11 per line. This would result in a cost of \$118,536 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unicel does include mobile to mobile and nights & weekends in their costs per line. The Blackberry phones will also incur monthly access as well as data usage fees. Unicel charges a fee of \$35 per Blackberry and would cost the City \$65,940 for unlimited usage. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$46 per month for 40MB. The total cost of Unicel would be \$666,671 for an annual savings of \$34,597 from the original estimated cost of \$701,628.

Verizon does not have a flat rate pricing where they charge a cost per line then a cost per minute. There option that is closest to this would be the one similar to the citywide pooling option that is set at 300 minutes for \$27.99. Without the \$2 fee per phone included in a pooling plan; this cost then would be \$310,620 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$528,820 for an annual savings of \$172,808 from the original estimated cost of \$701,628.

Best Practices

The following best practices have been observed by researching public and private institutions, throughout the United States. Although they are a great starting point, it should be understood that individual organizational needs might arise that can reduce the effectiveness of these practices and that each of these should be given diligent consideration when formulating policy and processes.

Management should ensure that there is appropriate oversight of cell phone issuance and usage. There should be a written, citywide policy communicated and available to all employees.

Cities including Los Angeles have encountered problems with poor management of cell phone devices. These cases often arise when an employee leaves the organization and the plan is not cancelled. Cities have incurred monthly costs while the phone was no longer in use. Also, if a phone is lost or stolen and the employee does not report it the City will continue to pay. It is important that these devices are tracked and monitored to avoid the pitfalls that so many cities have already encountered. The Houston Fire Department evidences another example of issues that can arise when proper oversight is not in place. Personal calls are not allowed in the department’s policy, but most individuals do make personal calls and often times their use is not properly calculated and incorrect reimbursements have been made to the City. These problems were found after auditing the department in 2006. One of the recommendations for the City after the audit was to create a citywide cell phone policy, as one was not in place.

Cell phones should not be used while driving. Policy should be in place to discourage this behavior to reduce costs and ensure safety of employees and the general public.

Currently, the City's cell phone policy states that "employees should use proper safety procedures at all times when using a cellular phone, but especially while operating equipment [or] driving...". It does state the concern for employees and the public, but it does not explicitly say that cell phones should not be used while driving.

From a survey of over 2,000 member institutions completed in October of 2009, the National Safety Council (NSC) (2009 A) found that 99% of the companies who had cell phone policies prohibiting use while driving experienced no decrease in productivity after the policy took effect. Those surveyed who have not established a cell phone policy responded that productivity concerns were the top reason for not implementing them. Of the respondents, 58% said their organization had a cell phone policy, and 469 of them have enacted bans on cell phone use while driving.

The survey included companies across the U.S., and a majority of the respondents included manufacturing, transportation and warehousing companies with less than 500 employees. These policy changes are very recent, as many of the companies have implemented them since 2006. The major concern for these companies was employee and public safety. Though companies are finding needs to change their policies most of them are still enforced by the honor system which requires educating participants to be effective.

A great example of a safe and responsible cell phone policy can be found on the NSC (2009 B) web site. This is their current policy, and is a great baseline for incorporating safety into any organization. It explains the risks involved with distracted driving and includes a policy acknowledgement to be signed by each employee for enforcement. The website also includes tools for enacting changes, from educating employees to getting management support.

Another indicator of why responsible cell phone policy is important comes from a study done by Cohen and Gram (2003) from the Harvard Center for Risk Analysis. While the cost benefits in terms of economic efficiency equal the costs incurred (granted with high uncertainty attributed to several input variables), complete compliance of a nationwide ban on cell phones while driving could prevent 330,000 total injuries, 12,000 serious to critical injuries, and 2,600 fatalities annually.

Cohen and Gram claim that the annual economic gain of \$43 billion annually equals the same loss in medical bills, property damage and other costs. The authors do not argue for any ban on the use of cell phones while driving nor do they support it. They simply contend that in terms of dollars pumped into the economy, the stimulus of cell phone on the road offsets the damage caused by road accidents, but economic costs are only one side of the equation when comparing risk levels, and do not include lifelong trauma or emotional costs associated with loss of life or serious injury.

In their study, Cohen and Gram also claim that among 29 developed nations belonging to the Organization for Economic Cooperation and Development, 8 countries have enacted legislation prohibiting hand-held usage while driving.

Currently, the use of hand-held phones while driving is prohibited for all drivers in 6 states (California, New Jersey, New York, Oregon, Utah, and Washington) and the District of Columbia. Recently, the City of Philadelphia has followed suit. They changed the law in May of 2009 and just began enforcing it on the streets as of December 1st. The fact that many states and cities in the U.S. have bans on cell phone use while driving is an important indication that many government bodies understand the importance of safe and responsible policy.

Managing the various cell phone plans to ensure that they are in accordance with the citywide policies.

Organizations must consider many factors when determining which model best suits their environment. Determining the most effective method for any organization will ultimately depend upon the individual circumstances and business objectives within the organization. Careful evaluation and consideration of the scenarios, questions and standards and best practices of wireless management will help the organization understand the implications each policy might present, and ultimately better plan for the impact it will have.

Mobile services are an integral part of productivity enhancement. Organizations of all sizes are embracing them for their employees. As the number of devices increases, so does the complexity involved in maintaining them and their cost. There are currently four basic structures for managing a mobile services network. These models are described below.

1. Individual Liable or Stipend Model

Organizations offer monthly reimbursement or a flat stipend to their employees towards purchase and use of their mobile service charges.

Benefits

This model has low accounting and IT overhead. Individuals are tasked with purchase of devices and services. The company can add a fixed amount to the employee's paycheck as a reimbursement towards mobile spending. No need to enforce personal use policy. Employees may be reimbursed on an after-tax basis to negate the employer's ownership of the devices and the requisite fixed asset tracking that follows, unless annotated documentation is available to substantiate reimbursements.

Drawbacks

This model fails to incorporate corporate purchasing power for plans and devices. No pooling optimization of calling plans leads to higher cost. Since employees own the phone, if they leave the organizations, they could potentially take away clients if no contact records were kept within the organization. The company loses oversight of employee call records and cannot enforce security and usage policies.

2. Individual Liable with Corporate Discount

The organization negotiates discounts with the carrier. Employees then buy devices and plans. Invoices are then reimbursed via expense reports or fixed stipend.

Benefits

It has the benefits of the Stipend model plus individuals get corporate discount on the phone devices and plans.

Drawbacks

This model has some of the same drawbacks as the Stipend model. No pooling optimization of calling plans leads to higher cost. Since employees own the phone, if they leave the

organizations, they could potentially take away clients if no contact records were kept within the organization. The company loses oversight of employee call records and cannot enforce security and usage policies.

3. Corporate Liable Centralized Model

The organization provides the device and the calling plans. The devices and calling plan have a corporate discount and all the phones are owned by the organization. Consolidated billing is managed centrally and the company is able to take a full deduction of mobile expenses for tax purposes. The organization can also implement security and usage policies.

Benefits

Corporate discounts for plans and devices. Pooling optimization of calling plans leads to lower cost. Mitigation of risks: wireless devices and its records belong to the company and the organization can enforce security and usage policies. Asset Management: Enterprise can track wireless as centralized procurement devices and bill payment. Not employee managed expense item. Organization owns the numbers. Allows for complete IRS compliance.

Drawbacks

Must implement and control security and personal usage policy. Need to track personal/business use to accurately comply with the IRS requirements.

4. Third Party Model

Organization can pursue third party contracting. The contracting services such as Rivermine can provide an intuitive and unified way to gain visibility into and control over nearly all aspects of managing wireless plans. They offer three different ways that this can be completed: a complete managed service, hosted software, or on-premise software.

Benefits

This model allows for total transparency to individual accounts and helps to enforce corporate policy. Sodexo, a fortune 500 company, is using these models and was able to reduce its costs in cell phone expenses by 25% in one year (Rivermine, 2006).

Drawbacks

Can create increased costs compared to corporate liable centralized model.

Focus on Continuous Improvement

Organizations like the City need to ensure that they are not only looking at the short-term gains that can be realized but also how they are able to maintain the newfound efficiencies and to continuously look for improvement in the area.

Key performance indicators

A well-defined measurable objective consists of direction, indicator, benchmark, target, and a time frame. In general the following indicators should be tracked and controlled after corporate policy is in place. These indicators will allow for efficient oversight and help to reduce cost over time:

- Minutes used by the organization as a whole, each department, and individual employees. Any and all groups that can be segmented above and beyond these generic groups should be added.
- Overage charges (charges incurred due to minutes used beyond contract allowance) need to be monitored and controlled. Management must be notified and aware of these costs to determine whether or not changes should be made. If an employee consistently incurs

these charges, then their plan needs to be updated to eliminate the added cost, or their behavior needs to change to save the City money.

- If possible/feasible track calls by time. Tracking phone calls by time allows oversight to policy compliance as is appropriate for individual positions. For positions that typically only use City phones during certain work hours, call times can be tracked to insure that the phones are being used appropriately.

Recommendations

The following recommendations are based on two parts. The first part is from the analysis above on the current process used by the City for the procurement of cellular phones and other wireless devices. The second part comes from research done of best practices being used by other cities and/or companies in the private sector.

- Review and update citywide policy.
- The use of pooling by departments.
- Audits and reviews of the cellular and wireless invoices to monitor personal usage.

Review and update the citywide policy

Currently, the City has a policy in place in regards to cell phone usage that became effective August 1, 2001. This policy covers a general idea of who should be receiving the cell phones, personal usage of cell phones and review of plans on an annual basis. Though this is a good starting point for the City, it would be in their best interest to update the policy. The policy needs to be more inclusive and look into items that are of concern in today's environment. The following are some additional items that should be addressed.

Choice of fringe benefit or employee receiving stipend

The City needs to become compliant with Internal Revenue Service (IRS) code 280F (d) (4). This code, which was originally passed in 1986 and amended as recently as 2002, states that unless a municipality has a policy that prohibits personal cell phone usage and regularly audits phone bills to confirm that personal calls are not being made then the entire amount of the phone expense should be charged as a taxable fringe benefit to the employee using the phone. This treatment is required because cell phones are considered "listed property" by the IRS.

The City currently does not comply with the code as its policy states that the City permits 30 minutes for personal usage. They also do not perform regular audits of the phone bills. By acting in this manner the City treats the cellular phone as "listed property" and should treat it as a fringe benefit. Under a fringe benefit it is the City's responsibility to include the entire amount of the phone bill as income on an employee's W-2 form. Another key point is that the cell phone records are public property and any individual or group can ask for the records of the cell phones and the calls that are being made. Any charges associated with going over the allotted minutes are also the City's responsibility to pay and then to investigate and to seek reimbursement from said individuals.

If the City decided to offer a designated stipend, the stipend amount would still have to be recorded as an. The advantage is that the employee pays the bills and it is their responsibility to manage their minutes so they do not go over the plan's designated minutes. Choosing to handle cell phone reimbursement as a stipend also creates the least amount of paperwork for the City.

The disadvantages are that the employee keeps the phone upon termination and possibly any data that is stored only on the device. Please refer to the Cost Saving Analysis section for quicker guide as to what some issues and concerns are if the phone is to be treated as a fringe benefit or as a stipend.

Inclusion of departmental restrictions and guidelines

Some departments have written policies while others do not have any. In a new policy, the City can outline the basic guidelines in stating who should have a policy but also reference that the individual departments will choose the levels of their own respective departments and these will be included in the City's policy. Every department should have written criteria to receive a cell phone. There should be justification from employees' part stating why some needs a cell phone.

Call for open bid

When selecting the vendors', the City should allow for open bid among all the cell phone companies in the market. Current the City has contract that is done by GSA contact. However open bid will let the vendors compete among themselves and provide lower possible bid. Before calling for City need to determine what kind of minute plan and cell phone every department needs. The cost analysis portion has detail recommendation of different plan. Please see cost analysis section.

Departmental pooling of minutes using one carrier

In an analysis conducted by the City it has been determined that there is not widespread use of departmental pooling of minutes. If a department would choose pool minutes it would possibly cut down on the management of the mass amount of cell phone plans. At the moment there are approximately 900 plans in place. There are some departments that use departmental pooling and are able to take advantage of the cost savings. In a calculation where each department chooses to pool minutes, there is a potential savings of twenty-six thousand dollars a month. This is based on the assumption that each phone needs three hundred minutes. This appears to a conservative assumption for a couple of reasons. The first reason is that in an audit of a cell phone bill is that the total minutes used was two hundred thousand which would be approximately seventy thousand less if every phone had an allowance of the three hundred minutes. The second reason is in a memo from the DSI Department. The Assistant Director in a survey responded that they use on average nineteen thousand minutes a month. In the attached worksheet, DSI is calculated to need forty-one thousand minutes for all of their phones.

Reduce the variation

Variation of the cell phone types need to be reduced by choosing only few basic phones. There can be only basic phone for all the employees who don't need a smart phone or PDA phone. This will help the cell phone vendor to provide a much lower price quote. This will make maintenance of the phone lot easier.

Audits and reviews of the cellular and wireless invoices to monitor personal usage

In accordance with a new policy the City and if they choose to continue to treat the phones as a fringe benefit they should incorporate audits and reviews of the invoices they receive. By incorporating an audit there can be better tracking of the usage of the cell phones for personal usage. Currently, not all departments audit their cell phone bills to check for overages or

personal usage. Other cities have this same issue. In an audit conducted by the City of Houston's Fire Department, auditors selected 60 monthly statements for review and 10% of them were calculated incorrectly in regards to the amount of reimbursement the City should have received.

This issue is being handled a variety of ways.

- Departments let their employees calculate their own usage and reimburse appropriately
- Allow employees 60 minutes of personal time
- No review or reimbursement
- Questioning of overages by person within department
- If an employee wants more minutes on their plan they have to pay the difference than the department's guidelines.

As mentioned earlier in the recommendations for a City-wide policy, the City must choose if they are going to treat the usage of cell phones as "listed property". If they continue to allow any type of personal usage and not perform regular audits the phones must be charged as a fringe benefit. So if the City wants to continue to treat the phones this way it must prohibit all personal calls and designate people(s) to perform regular audits.

Inclusion of prohibiting cell phone usage while driving

In a 2006 study conducted by the National Insurance Institute for Highway Safety Motorists (Toone, 2008), found that motorists who use cell phones while driving are four times more likely to get into crashes serious enough to injure themselves. There also was a study in 2002, the Harvard Center for Risk Analysis calculated that 2,600 people die each year as a result of using cell phones while driving. They estimated that another 330,000 are injured.

With the above facts as well as the passing of ban on texting while driving in Minnesota, the City should look at implementing into their policy a complete ban on the use of cell phones while operating a motor vehicle. This might not be a factor now but it could be down the road if the City would face an increase in premiums due to accidents caused by an employee using a cell phone.

Sustainability

In today's environment, businesses need to look at the issue of sustainability. The plans that the City has in place with the various wireless providers allow for a new phone every year. The City should include that their employees are only to take advantage of this perk if their phone has become broken and the employee has a legitimate need for a replacement. If there is an exception to a replacement the City could either look to see if the old phone could be used somewhere else within the City or it could see if it would be feasible to set up a program with one or more sister cities.

Recommendation Summary

This work was conducted to educate the City on their current cell phone procurement situation in comparison to best practices that arise from research in both the public and private sector. While there are many recommendations for the City that arise from this analysis, success will ultimately depend on the implementation and commitment of selected points that align with resources and objectives. It is important that these ideas are taken as a basis for consideration and not a final decision as there are many things to consider before taking action. In total we

hope that these recommendations will provide insight to the fact that an overreaching and clearly written policy, determined by the City will help to solidify and enforce practical and cost saving behaviors that are sustainable and add value to all stakeholders now and in the future.

SPRWS Water Meter Procurement

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Purpose

The following statement of purpose identifies the focus and parameters of the Water Meter Procurement project being performed on behalf of the City and Saint Paul Regional Water Services (SPRWS).

The City and SPRWS are preparing to initiate a project whereby the majority of the City's residential water meters will be replaced. To support the selection of products, services and processes within the project such that the residents of Saint Paul will receive maximum long-term value, the following analysis has been developed.

Process Overview

The following process overview provides relevant information related to the current water meter procurement practices within the City and SPRWS, which serves as a baseline for further analysis. SPRWS maintains metering services for communities outside of Saint Paul, such as Maplewood, West Saint Paul, Falcon Heights, Lauderdale, and Mendota Heights.

The City and SPRWS are currently engaged in a project to purchase and install approximately 93,000 residential water meters along with the necessary systems and software to support them. This project is aimed at upgrading aging water meter systems that often cannot be properly serviced or repaired and that do not ensure an accurate accounting of water usage. The following information defines the scope of this project:

Project Budget: \$20,000,000

Funding Source: Funding via public bonding or a state revolving fund loan is planned.

Timeline: The project is expected to begin in June 2010 and be completed within 3 years.

Project Deliverables: The project deliverables include consultation, water meter installation, installation of ancillary equipment and software, customer service, and quality control.

Preliminary Study: Based on a preliminary study performed in December 2008, the following project cost and technology summary was produced:

Option A: Water meters with external touch pad technology

Description: Meter readers walk to the external panel on residences and touch a hand-held reader to the panel to collect water consumption data. The data is then uploaded back to the central system when the meter reader returns back to the office.

Approximate cost: \$29 million

Option B: Water meters with mobile radio read technology

Description: Meter readers drive through residential neighborhoods to connect from the vehicle to the radio signals of the external panels on residences. Water consumption data is collected via the mobile radio system and uploaded back to the central system when the meter reader returns back to the office.

Approximate cost: \$43.4 million

Option C: Water meters with fixed network technology

Description: Meters are monitored remotely from an office location and water consumption data is collected wirelessly without being at or near the residences using the water.

Approximate cost: \$45.3 million

Request for Proposal (RFP): An RFP outlining the project deliverables was released to potential project consultants for review and response. Completed consultant proposals have been received from the TKDA and CDM consulting firms.

Analysis

The following analysis builds on the information provided in the Process Overview with a review of current water meter procurement practices within the City and SPRWS. This analysis enables the identification of strengths and weaknesses within current water meter procurement practices, which can be compared and contrasted with the procurement practices of other external entities.

Strengths:

- According to the preliminary study performed in December 2008, SPRWS supplies excellent finished water quality, which helps extend the expected useful life of water meters as well as the years of acceptable billing accuracy (Jacobson, 2008).
- According to TKDA, the operational units at SPRWS are adequately staffed and proper water meter maintenance is being performed.
- The commercial accounts are read monthly by a drive-by mobile radio read system, which allows SPRWS to bill monthly without requiring additional meter readers. As a result, payments for service are received faster allowing SPRWS to better finance on-going projects and operations.
- There is a well-established process to obtain and select bid proposals. This process, along with the ranking method used, allows the utility to gather information in a consistent written format, which enables more effective and fair bid comparisons.
- The preliminary study to evaluate the options for residential water meter replacement was performed by an independent, well-regarded consulting firm.

Weaknesses:

- No significant information has been found to indicate that the current water meter replacement project is being approached with an appropriate level of strategic emphasis on water conservation and sustainability.
- The preliminary study does not take into account the benefits of obtaining timely data to be used when making short and long term operational decisions and an overall sustainable strategy. Moreover, the study does not factor in the lost revenue due to leaks in the distribution system.
- A plan to develop or update any operational and maintenance manual that includes contingency plans for operational problems and eventual replacement strategies has not been developed.
- Key performance indicators to evaluate project progress, completion, and to follow up on problems beyond implementation have not been established.
- A robust communication plan to provide project information, updates and results to the public has not been identified.

Best Practices

The following best practice review utilizes research related to water meter procurement practices in the external marketplace to identify and consider potential process, product and system solutions for recommendation to the City and SPRWS.

Sustainable Procurement

Cities - Dubuque, Iowa:

Dubuque, Iowa has partnered with International Business Machines Corporation (IBM) in a "Smarter, Sustainable City Initiative". The goals of the initiative are to give Dubuque residents the information needed to make educated decisions about the usage of water and other resources.

According to the city of Dubuque, "The first phase of the smart city partnership includes two projects to enhance the city of Dubuque's and its residents' understanding of their energy consumption and water management, in order to reduce costs and the overall carbon footprint. To accomplish this, IBM will build a Platform for Real-time Integrated Sustainability Monitoring to provide Dubuque with an integrated view of its energy management, including energy consumed by the electric grid, water system, and general city services (The City of Dubuque, 2009).

Federal Agencies - U.S. Environmental Protection Agency (EPA):

Many United States cities have partnered with the EPA to provide information to the public on ways to conserve water resources and save money. Through this partnership, consistent information is being distributed to the public regarding conservation practices, water efficiency labels and branding, and resources for rebate programs (U.S. Environmental Protection Agency, 2009). Utilization of these informational sources allows a city government to limit the expense associated with developing its own customized conservation programs and information sources.

Non-Profit Organizations - Alliance for Sustainability:

In many communities, organizations are engaged in sustainability education, knowledge sharing between community leaders, and the organization of conservation events. These organizations provide a valuable resource of information and ideas that can be used by city employees to further develop sustainability strategies, policies and tools. Locally, the Alliance for Sustainability is a Minneapolis based organization that offers many of these useful programs (Alliance for Sustainability, 2009).

Corporations - Walmart:

Each day, consumers influence the behaviors of the suppliers that produce consumable products. As items are purchased, suppliers obtain and evaluate purchasing trend information to better understand public demand for certain items and then modify their operations to cater to the needs of their customers. When a single customer or purchasing group buys large volumes of products from a supplier, they wield more influence over supplier behaviors. Knowing this, Walmart has made a strategic decision to incorporate a sustainability index into its evaluation of suppliers (GreenBiz.com, 2009). By doing so, the company is using its influence to urge suppliers to operate in a more sustainable manner. City governments can use this same concept to leverage their purchasing power and advance their sustainability goals on behalf of city residents.

Leveraging Technology

Increasing Efficiency:

Advanced Meter Reading (AMR) is the technology of automatically collecting consumption, diagnostic, and status data from water meter devices and transferring that data to a central database for billing, troubleshooting, and analyzing. By most accounts, AMR implementation is seen as the preferred plan for the future. Replacing old water meters with AMR helps ensure water consumption is tracked accurately for billing purposes. Also, AMR systems increase the value add proposition of meter readers when they are incorporated in the system. AMR increases efficiency and helps streamline billing and monitoring by enabling employees to be more productive. It also helps to improve efficiency because it provides an effective solution for dealing with inaccessible meters, unsafe meter locations, high turnover premises, and other high-read-cost meters (Kozlosky, 2008).

City of Cincinnati:

In 2001, Cincinnati struggled to maintain its water meters and accurately capture water meter readings. However, because Greater Cincinnati Water Works (GCWW) values its 180 employees, it did not wish to eliminate any work staff in the process of upgrading its water meter systems. GCWW turned to Neptune Technology Group for water meters and technology. To achieve the GCWW goal of not eliminating staff, the City of Cincinnati chose to move to a radio frequency (RF) metering system. Prior to this system, GCWW struggled to get eighty-five percent of its meters read on a monthly basis and the rate was as low as forty percent in some areas. Upon implementation of RF water meters from Neptune Technology, GCWW now achieves a one hundred percent rate of water meter readings with fewer meter readers. Their original staff of 180-meter readers was reduced to 157 and the remaining 23-meter readers were reassigned to other jobs within GCWW (Neptune Technology Group, 2009).

Reducing costs of manual reads:

Most water replacement programs target full implementation of AMR systems in a period of five years or less. During this time, utility companies will often also seek to reduce operational costs through contract negotiations with meter readers, rerouting, and productivity improvement. Best performing utilities continually optimize routes to maximize productivity and reduce cost. Since many AMR systems require route reading, either using a walk-by or drive-by technology, it is wise to continually re-evaluate routes to achieve all the efficiency gains an AMR system enables.

The need for a good metering system:

The most effective water meter replacement programs are actually part of a bigger initiative for water conservation. Metering is a key component of any water conservation initiative since accounting for use and loss in a water distribution system allows utilities to make informed decisions. A deficient meter system weakens loss control, costing and pricing.

Many of the replacement programs include installing meters at all possible water exit points to account for the entire volume of water distributed through the system. The metering information produced is then monitored on a regular basis and compared to billed water volumes to determine the non-revenue water lost in a given period. Most of the programs include guidelines

and procedures necessary to address meter deficiencies. Calibration guidelines, maintenance procedures and replacement plans are also included in the overall program.

Billing and Data Management

Billing:

Residential water meters are a key element of the overall infrastructure necessary to deliver quality water services to residential customers. The reason for this is the crucial role they play as a mechanism to accurately account for water usage and capture other relevant data. With this accurate and robust water usage data, the total cost associated with the delivery of residential water services can be more accurately measured and equitably distributed to residential customers through utility billing.

Accurate utility billing is critical for governmental organizations, because it enables the alignment of water services revenue with the expense incurred to provide the service and reduces the risk of budgetary shortfalls. However, accurate billing is not the only activity or even the most important activity enabled by effective residential water meters. After all, accurate utility billing, in and of itself, does not remove expense from the water services system. Instead, it more accurately shifts costs from the water service provider to the parties using the water services. This is not to say that accurate billing is not important. Accurate billing does provide value to Saint Paul residents by ensuring the fairness of utility expense allocation, thereby creating a financial incentive to reduce water usage and establish good conservation behaviors. However, for Saint Paul residents to gain maximum value from the upcoming water meter investment, the primary focus when analyzing residential water meters should not be on the factors that enable the shifting of costs, but on those that help to remove costs from the water utility system as a whole.

Contract meter reading services:

Some cities are choosing to outsource meter-reading services to reduce total overhead and as a strategy to transition to AMR (Kozlosky, 2008). Outsourcing the meter reading functions helps to trim costs, however; the main reason many cities are considering outsourcing is to improve customer service by streamlining the overall process. One of the common problems when maintaining a meter reading department is the high employee turnover rate, which causes high re-training costs and inefficiencies. Because the meter reading position is generally an entry-level position, employees often leave the position within a year. Because of this, it is difficult to gain efficiencies in the process since employees don't develop the required proficiency.

Data Collection:

With more accurate data being produced from a newly upgraded water meter, how often should the data be collected? A single read with an occasional off-cycle read from a traditional AMR system is enough for monthly billing. However, needs are changing quickly and water providers are realizing the value of accessing meter data on demand when they need it. Water utilities are capturing meter data up to every 15 minutes. Where they once were able to collect one read per meter per month, they can now collect up to 2,688 reads per month (Sanborn, 2009). Around-the-clock availability of usage data enhances utility operations in many ways, from helping technicians identify leaks to preventing tampering. Billing explanations are also easier to present

to customers and utility personnel have accurate, timely information when assisting customers who wish to reduce their use of water (Schaar, 2009).

Meter Replacement

Testing:

Age and deterioration are typical reasons why replacement is necessary for water meters in residential areas that are approximately 20 years old or older. The actual water meters for the City fall within common guidelines for replacement. Most manufacturers guarantee their meters for at least 10 years so it is wise to establish a predetermined schedule to replace water meters every 13 to 18 years so that significant performance deterioration and revenue loss does not become an issue. Also, it is important to ensure the correct sizing of water meters being considered for replacement. By changing from large meters to smaller ones where appropriate, cost savings can be achieved.

Unaccounted for water:

Aging water meters are often responsible for a significant portion of “Unaccounted for Water” (UAW), which is the difference between the amount of water sold to customers and the amount of water produced. UAW skews the amount customers pay for their water usage by inflating operational costs. According to an Ontario Municipal Benchmarking Initiative, municipalities that perform a full water review can identify total water losses from leakages, meter inaccuracies, and un-authorized consumption (Ontario Municipal Benchmarking Initiative, 2008).

Recommendations

The following water meter procurement recommendations are the result of an overall assessment of the information provided above and are targeted to produce maximum value to the City, SPRWS, and the customers they serve. While the information is directed specifically at water meter procurement practices, many of the concepts and recommendations apply to procurement practices in general.

Sustainable Procurement

Education and Training:

Education and training for City staff and community members related to sustainable procurement and water conservation is critical to the achievement of City goals. In order for all involved parties to support the use of City resources to achieve sustainability goals, they must understand what the concept of sustainability does and does not represent, how it will impact them, and what benefits will come from any behavior changes that are required. Therefore, mandatory sustainability training should be put in place for all City procurement staff. This training may be most efficiently delivered through the development of an online training module that is specifically tailored to present the City’s position on sustainable procurement and to introduce the policies and controls that have been established to ensure sustainability factors are considered in all procurement decisions. Additionally, sustainability resources targeted at the public should be developed and space should be dedicated on the Sustainable Saint Paul web page to house these resources. Furthermore, each communication point with the community, whether related to water meters or otherwise, should be considered a potential opportunity to reinforce sustainable practices and further educate the public. Community members that are educated and engaged in sustainable practices at home are likely to support and get involved in sustainability initiatives

sponsored by City government. Without strong public support, City directed sustainability initiatives are likely to be less effective.

Incentives:

Water is a limited and valuable community resource, which is made available through community infrastructure and services. As such, the ongoing use of that resource should be accurately monitored and controlled to help ensure future supply and to reinforce appropriate customer behavior. Effective water meter procurement and installation provides an essential piece of a sustainable water management system by providing a necessary tool to accurately account for water usage within the system. However, having the appropriate tools in place is not the only requirement for ensuring the efficient use of water resources. In order to maintain and support efficient, sustainable water management, City employees and the customers they serve must be active partners in conservation efforts. In support of this partnership approach, incentives for desired behaviors should be put in place. These incentives can have several forms including financial rewards or penalties, reinforcing communications, and public education. Once in place, the new water meters, along with appropriate water conservation incentives, will serve to support Mayor Christopher B. Coleman's "Sustainable Saint Paul" program.

Policy & Communication:

To be most effective, sustainable procurement activities must engage both City employees and the public in a coordinated effort. As a matter of City policy, steps should be taken to conserve and track the amount of water used in City operations and measure savings related to conservation initiatives. The upcoming water meter project should be used as an opportunity to educate the public on not only the details of the water meter replacement project, but on appropriate water usage and the benefits of conservation. Additionally, any upcoming plans and past City successes in its efforts to conserve water resources and reduce cost should be shared with the public. In so doing, the City will lead by example and demonstrate to the public the overall value of the water meter project and the tangible benefits that can be achieved through water conservation activities

Product Evaluation Standards:

Select and install water meter equipment that provides maximum customer value. The evaluation of value should not be anecdotal, but a systematic and quantitative part of each major purchase initiative. The process for evaluating value could be accomplished through the development of an evaluation matrix that asks key questions related to the procurement process. The act of routinely completing the matrix prior to execution of major purchases would ensure consistency of approach and establish a pattern of thought and behavior that would carry through to all purchases, even smaller ones. The value matrix should ask targeted questions including, but not limited to:

- Product or service cost over the life of the product or contract
- Product or service quality
- Environmental risks
- Community factors
- Supplier efficacy
- Implementation
- Training

Supplier Engagement:

Sustainability objectives cannot be achieved without the commitment and support of the suppliers who develop products and services purchased by the City. As a customer with sustainable procurement goals and expectations, it is necessary for the City and SPRWS to clearly communicate those goals and expectations to the suppliers with whom business is done and hold them accountable for their commitments. By doing so, the City will not only be taking internal steps to ensure the sustainability of its services to future generations of residents, but will leverage its buyer power to influence supplier decision making and give suppliers the opportunity to align themselves and their products with the City's sustainability goals.

Measurement and Results:

To understand and evaluate the internal and external progress made toward established sustainability objectives, it is critically important to establish and monitor key performance metrics. These metrics will serve as a tool to communicate successes and failures with internal and external stakeholders and provide a consistent methodology for assessing tangible results.

Leveraging Technology**Automation:**

To more efficiently manage information and to help automate repetitive tasks, technology plays a vital role. With this in mind, technology should be leveraged to minimize routine activities, reduce total cost, and decrease the risk of error related to water usage monitoring. Routine activities, such as manually reading meters, billing, and customer communications are generally more efficiently performed through the use of automation and technology. By leveraging technology, manual interaction with remote meters can be minimized, thereby reducing labor costs. Additionally, the functionality available in high-end meters and the associated water monitoring software increases the accuracy and availability of water usage data. This data can then be used to produce more accurate billing statements, improve long term water usage projections for the City, and enable incentive and reward programs that promote water conservation. Based on the Meter Reading Systems Planning Study performed by TKDA for SPRWS in December of 2008, the efficiency and potential service gains produced by moving from touch pad technology to radio-read or fixed network technology is outweighed by the incremental cost of these systems. However, the cost of these technologies will likely come down over time and therefore a periodic review of upgrade costs is warranted.

Policy & Communication:

Sustainable procurement and conservation of water resources are areas of focus for many independent organizations and city governments across the United States. That being the case, many existing online informational resources and tools can be made available to Saint Paul residents through the City's web site and supplemented with internally developed information. It is recommended that the Sustainable Saint Paul web page be further developed to include a resource center specifically for the public, which contains information and links to all existing and planned sustainability programs aimed at helping City residents make educated purchasing, consumption, handling and disposal decisions that are aligned with the City's strategic goals.

Surveys:

In order to enable continuous improvement of City procurement practices, it is important to obtain the information necessary to compare project requirements and expectations with the resulting outcomes and impressions from the completed project. To accomplish this, it is recommended that an effective feedback loop with the public and other project stakeholders be established and utilized throughout the course of the water meter project. Automated, online or manual surveys are a good tool for gathering the necessary information on key project outcomes including:

- Installation
- Communication
- Product quality
- Service interruption
- On time delivery
- Customer service

Overall Implementation of AMR:

Partial or complete AMR implementation is generally viewed as the preferred plan for the future. Best performing water service organizations are strategically installing AMR to deal with problem meters and high maintenance and operating cost. The replacement of old water meters helps to ensure that water consumption is being tracked accurately for billing purposes. It also enables an accurate evaluation of community water demands. Utilities are also choosing to install AMR for large businesses and commercial customers before replacing residential meters. Commercial customers in general use more water per account than residential customers; therefore; the return on investment associated with AMR implementation is greater for these customers. While a system wide implementation of AMR for residential customers may be cost prohibitive, strategic deployment of AMR should be used to address problem meters. Additionally, new residential meters being installed should be carefully evaluated to ensure upgrade compatibility with AMR technology.

Billing and Data ManagementElectronic Billing:

Current City practices include the quarterly billing of residential water service charges on mailed paper statements, which drive significant ongoing costs. In fact, the December 2008 Meter Reading Systems Planning Study performed by TKDA estimated that \$217,000 is spent annually on paper and postage alone. Significant annual cost reductions associated with utility billing could be achieved through a conversion of customers to electronic billing. While a conversion to electronic billing would involve a significant initial expense for the necessary systems and software, long term annual cost reductions would ultimately lead to a positive return on investment, if enough customers can be converted to the system. Additionally, other benefits and service options are enabled through the conversion of customers to electronic billing including:

- Reduces overhead associated with a potential future conversion to monthly billing of residential charges
- Enables an inexpensive means for additional non-billing communications with customers
- Satisfies a growing public demand for electronic billing services

If an electronic billing option is made available to customers, the conversion of customers to the new system will certainly not occur overnight and would require public education, promotion, and possibly customer incentives. However, the potential savings associated with electronic billing warrants further analysis of available systems and costs.

Flow Data:

For water data to be most beneficial, a meter with a wide range of flow capabilities should be selected. The monitoring of water flow enables the identification potential water system problems, which reduces the risk of system failures and service down time.

Data Management:

Robust data management will be important for monitoring usage in the future. The selected data management system must allow for variable sort features and the ability to easily compare data from different service regions. The system must be able to archive multiple years of data so that water usage trends can be monitored. It is recommended that outsourcing water data management and storage or contracting with an external firm to perform a periodic analysis of water usage data be considered. By outsourcing some or all of its data analysis activities, the City and SPRWS will be better able to benchmark its performance with other municipalities and ensure that it is using the available data to its fullest potential.

Meter Replacement

Testing:

The City and SPRWS need to ensure there is an appropriate meter-testing program in place by following the guidelines of the American Water Works Association (AWWA). The testing program should set specific standards to ensure that all installed meters operate within the established accuracy limits for minimal and normal test-flow rates.

Replacement Phasing:

To obtain the most rapid return on investment, replacement should first be performed on metering regions with the largest suspected revenue loss due to meter inaccuracy. This approach will put new, accurate meters in place where they will have the greatest immediate impact on increasing revenue generation.

Training Contract Procurement

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Purpose

The purpose of this section of the project is three fold. First, the current training contract procurement in the City will be assessed for the Saint Paul Police Department (SPPD), the Saint Paul Fire Department (SPFD), and Saint Paul Regional Water Services (SPRWS); through the review of information obtained from interviews with staff members and data provided to the Saint Mary's team by the City. Second, research will be conducted of best practices in the area of training procurement from both the public and private sectors. Third, based on both the assessment of current training contract procurement in the City and the research of best practices, recommendations will be provided to the City, which are aligned with the current level of need in the City and are aimed at either reducing training procurement costs or increasing the value of training programs.

The approach that was taken for the assessment of current training contract procurement was to acquire a baseline of information from the SPPD, SPFD, and SPRWS are in regards to: what training programs are in place, which vendors or products are used for each, what the delivery methods are for each, what the course objectives are for each, and what the costs and contract specifics are for each program. This information, however, has not been previously compiled for these departments or was otherwise unavailable for recovery. Therefore, fragmented information was received in regards to these topics and each of the focus departments was working to compile this information; however, the timeline for recovery was greater than this project's timeline. In the absence of this basic information, the approach to the project was reassessed to determine the best methodology to provide recommendations for decreasing costs or increasing value. Consideration of cost is only a small part of the overall picture of value. Indeed, if decreasing cost was the only objective, then an easy solution would be to start cutting training programs or to shift all training programs to electronic training delivery (e-training). The Saint Mary's team is aware that this was not in any way what the intent of this project was though, because the overall net value would decrease and the effectiveness of the City's training programs is essential to the sustainable success of the City.

The most valuable approach to this project then, is to consider what the best practice strategies are which support an overall increase in value for training contract procurement; strategies which have the potential for decreasing costs while maintaining, or increasing, effectiveness. The strategies, which are presented, in the following sections have been identified through research as the best practices from public and private organizations due to their applicability and their common use among many organizations.

Process Overview

The Process Overview is an assessment of the current training procurement policies and procedures in the City.

General Training Contract Procurement

Training Vendor and Product Selection

The requirements for training vendors and products in the City are department specific based on the particular needs the training should fulfill. In some cases, requirements are imposed by outside regulatory agencies such as the Occupational Safety and Health Administration (OSHA).

Training is considered a professional service, which means that there is no requirement for a competitive bid. Usually, a Request for Proposal (RFP) is used, which is especially true for more expensive training services or products. Evaluation factors, which are looked at in the decision process, vary depending on the field of training but generally include cost, quality, industry standards, previous complaints or lawsuits, and diversity. The decision making process can be based on a point system, a more rational approach including discussions and thought processes, or sometimes a decision can just be made and pursued.

Partnerships

Very few training partnerships were identified within the City. In some cases, departments may partner with other city departments or even other organizations if it makes sense for the specific situation. Two examples of training programs that may lend themselves well to partnerships based on their similarity and existence in multiple departments are Cardio Pulmonary Resuscitation (CPR) and Defensive Driving.

Training Delivery

Various types of training delivery are used within the City including: field training, classroom training, and electronic training. Within regulations in certain industries, some training courses require “in-person hours” in-order to get credit. Electronic training selection is similar to other types of training in that it is considered a professional service. Usually contracts are set up for one year. Any training service or product that costs over \$2,500 per year requires a contract.

Alignment with Business Strategies and Objectives

The City’s Office of Human Resources’ Mission Statement, is to attract, develop, and retain a diverse, professional workforce, and to minimize risk through integrated, strategic policies and procedures. Although a high degree of alignment is apparent, the question of alignment is not a specified item on a checklist.

Police Department

Training Vendor and Product Selection

Various means of vendor selection exist for the Police Department due to highly specialized training modules. Most of the training within the Police Department is organized and conducted through the Saint Paul Police Department (SPPD) Professional Development Institute (PDI). Decisions on which training services and products to use are usually made anecdotally by the training department staff and there is no board of decision makers or point system used. Many times, talking to other police departments attains references. Evaluation factors generally include: cost, quality, referrals, lawsuits, and if the vendors or products are local.

Partnerships

There are a few examples of training partnerships that exist within the SPPD. One example is a partnership with the Metro Transit Commission (MTC), which has its own police force. The MTC sends its officers to train with the SPPD for the Field Training Officer (FTO) program. There are also training partnerships with the Drug Enforcement Agency (DEA) and Bureau of Alcohol, Tobacco, and Firearms (ATF) for Range Training and PDI courses. The SPPD is also able to utilize the IRS law enforcement division’s Firearms Training Simulator (FATS). After September 11th, 2001, Hazardous Materials training was done with the Saint Paul Fire Department (SPFD). Another partnership, which may be beneficial, would be with the Parks and Recreation Department, which has some similarity in its training courses. Training programs, which are similar and might be possible to form a partnership, are leadership training and hazardous materials training.

Training Delivery

Various types of training delivery are utilized by the SPPD including field training, classroom training, and electronic training which includes the use of simulators; although e-training for the large part has not been utilized. Possible training modules that might be a good fit into electronic training delivery, which are underutilized, are a lot of the recurring Peace Officer Standards and Training Board (POST) mandated training modules, which includes: blood borne pathogens, Criminal Justice Information System (CJIS) training, bi-annual Driving While Intoxicated (DWI) updates, data practices, and legal updates which could potentially be done in-house by a city attorney.

The SPPD has many in house experts that provide training to the department on matters such as interview and interrogation, DWI updates, and use of force. They also have outside instructors come in to teach topics such as tactical communication and ethical leadership.

Alignment with Business Strategies and Objectives

The SPPD mission is to maintain a climate of safety and security throughout the city. The Police Department will effectively manage its resources to deliver quality services within an atmosphere of individual integrity and mutual respect. Emphasis will be placed on: strong community relation, active assessment of citizen needs for police service, and modifying services, as feasible, to meet the needs of each neighborhood.

The training modules within the SPPD are considered to be in alignment with the mission of the Police Department although alignment is not a standard parameter when training is considered. While alignment can be justified for all training conducted, some training modules are more aligned than others with the overall mission and objectives of the Police Department.

According to Training Commander Paul Iovino, “approximately 90% of department training can be easily transferred to the job”. Most are job specific and easily applied. A small percentage is more complex and not as easily applied and some is mandatory and not job specific. Some training sessions such as Blood borne Pathogens, the Emergency Vehicle Operators course, Community Oriented Policing, and Emotional Survival training are not popular with all officers.

Continuous Improvement

In order to determine effectiveness, an evaluation is performed after each training course. Supervisors will also anecdotally assess if there was improvement in a specific area following training. Some employees are retrained or offered refresher courses if there are noted performance deficiencies, a need exists, or desire to be retrained in a specific area is expressed. Retraining is considered and granted on an individual basis based on cost and need. Most training courses include handouts for later quick reference by officers. The type varies by topic but can include a PowerPoint, a cheat sheet, or an information card. After the emotional survival training course, 50 copies of the book “Emotional Survival for Law Enforcement” were purchased to handout to officers.

According to Training Commander Paul Iovino, SPPD officers receive a fair amount of the right type of training, which includes a good mix of mandatory and elective training. “Some people do receive more training than others based on assignment and supervisory discretion. If an officer works in a specialized unit and has significant staffing and a supervisor that is pro-training, they are more likely to be approved for more training”.

Budget

The SPPD has an equivalent of 784.7 full time employees including 9 officers who are designated to the training unit. The training unit has a commander, 3 sergeants, 2 officers and 1 clerical, and two light duty officers temporarily assigned to the unit.

The Police Department's proposed general fund budget for 2010 is \$74,793,286 and the departments proposed special fund budget for 2010 is \$24,758,415. Included in the proposed budget is an allotment of \$1,051,104 for police training.

Fire Department

The Fire Operations department oversees training for the SPFD as well as; fire suppression, emergency medical services, and hazardous materials response.

Training Vendor and Product Selection

The Fire Department uses the RFP system for purchasing training vendors and products. A few of the training courses for the Fire Department are Fire Recruit Academy, Vehicle Extrication, Ice Rescue, Diving and Fast Moving Water Rescue, Defensive Driving, and Command Courses.

The SPFD utilizes the Hennepin Technical College for its Fire Recruit Academy. The Hennepin Technical College was chosen because it was the only local college that does fire training of its kind and they have had a long-standing relationship with them. The SPFD utilizes the Century Technical College for extrication and ice rescue training.

For diving training including fast moving water rescue, the Fire Department works with Dive Rescue International, which has a good reputation. The Fire Department sends recruits to Dakota College for Defensive Driving Training and has also used Smiths Systems for training 6 drivers in safe driving techniques. In the case of Smiths Systems, they did not have a long-standing relationship with them so they asked for references from other divisions in the City.

Elective training is generally not available for the City's firefighters due to budget constraints. The exception to this is if the firefighter is accepted into a course through the National Fire Academy. In this case, the government pays tuition, board, and travel and the department releases the employee from duty to attend.

Partnerships

The SPFD does not utilize many training partnerships due to the uniqueness of their training programs. Possible partnerships with other city divisions would include training in blood borne pathogens. The Fire Department does open their drill tower to the SPPD for repelling practice.

Training Delivery

Depending on the specific training, an in-house instructor, a vendor, or a government agency can provide it; however training is generally provided internally due to financial burdens created by contracting with vendors. The SPFD utilizes various types of training delivery methods including field training, classroom training, and minimal electronic training which include: web links, and video training. The Fire Department is concerned with the quality and effectiveness of electronic training. "Students need to be motivated to learn for electronic training to be effective". Fire Training Chief Keith Morehead believes that it might be effective if it was very interactive. The Fire Department uses the training methodology of "Tell them – Show them – Practice – Have them show you what they just learned".

Alignment with Business Strategies and Objectives

The SPFD mission is: to seize every opportunity to provide compassionate, prompt, state-of-the-art services to ensure the safety and well being of the community. The Fire Department Training Unit's mission is: to provide quality-training programs by dedicated professionals to meet the training needs of our department.

Training Chief Morehead feels that by fulfilling the training department mission, they will be fulfilling the mission of the Fire Department.

Alignment with the mission is not an item on a checklist to check for training. Training Chief Morehead does feel that there are differences in the value of training modules in regards to alignment with overall objectives. The training department asks the questions: "What do we need to focus on, what is going on in the street, and what is going on with technology?"

In the opinion of the Fire Training Chief, most, if not all, of the training can be easily transferred to the job. All company level training completed at the Training Center is mandatory when on duty. The Fire Training Unit initiated this year a new training activity called 'Company Training Hour.' In this activity, every company officer leads their crew through a training exercise of their choice. The training is mandatory, though it is not always completed, but since the topic choice has a vast variety of topics, it could also be considered elective.

Continuous Improvement

The SPFD doesn't really break things down by factors or variables. Experience in training tells them what needs to be focused on. The training department feels that periodic review is necessary anyways because nothing stays with you forever (in regards to long term knowledge retention). "Effectiveness involves knowing the audience and knowing how they learn" – Fire Chief Morehead.

Effectiveness of each training course is evaluated through verbal feedback regarding what went well and what could be done to improve the training. Written evaluations are not utilized because evaluating the forms received is too labor intensive and in most cases, may not ever get accomplished. Firefighters returning from extended leaves related to illness or military deployment are provided a review of training sessions missed in their absence.

In regards to quick reference materials being provided with training, the Fire Department normally provides lesson plan notes with each course or has them available upon request. In regards to training being at the appropriate level, quantity, and type, Chief Morehead does "not believe that anyone responsible to train co-workers to respond during life and death situations could ever say they receive too much training or even that they are doing enough. There are many areas that we could improve upon and do more but considering our budgetary and logistical restrictions, we are providing our people with an adequate level of continuing education to keep them and our customers' safe. We prioritize the needs before we plan our training".

Budget

The SPFD total general fund budget proposed for 2010 is \$52,700,027. The total special fund budget proposed for 2010 is \$4,834,775. The proposed 2010 budget for fire plans and training is

\$616,148. The proposed 2010 budget for fire training is \$23,200, which is unchanged from 2009.

The SPFD has 472 full time employees; 4 of which are designated to the fire plans and training division.

Refer to Appendix 1 for costs of some of the Fire Departments training courses.

Saint Paul Regional Water Services

Training Vendor and Product Selection

The Saint Paul Regional Water Services (SPRWS) does not have formal requirements for training vendors or products other than requirements for contracting with vendors. Training vendors and products are currently found and chosen through vendor solicitation and evaluations of the vendor or product.

Partnerships

SPRWS currently has training partnerships with the city's HR department, KellerOnline, MN Safety Council, and Michael's Engineering and is also looking into adding a partnership with TPC Training Systems.

Training Delivery

SPRWS currently uses various types of training delivery methods including field training, classroom training, and online training. Safety training is currently conducted using both classroom training and field training. The option of using online safety training is available although it is not currently utilized.

Alignment with Business Strategies and Objectives

The SPRWS mission statement is to provide reliable, quality water and services at a reasonable cost. The SPRWS seeks to align their training programs with this mission by supporting and financing training; by providing education and development opportunities that ensure continuous improvement, state of the art skills, and a motivated workforce; by meeting all training, certification, and safety requirements; by addressing succession needs; by developing awareness of the water industry; by ensuring quality performance; and by helping employees realize their professional and personal potential.

Continuous Improvement

SPRWS currently gives an evaluation to determine the efficiency or effectiveness of the safety-training module. No other training courses are evaluated.

Analysis

Based on our findings, training procurement is typically done through an RFP process that allows for a fairly open solicitation of bids from vendors and takes into account multiple factors for selecting the best vendor. Much of the selection criteria used, however, is non-specific and/or subjective in nature. There appear to be proper controls in place around allocation of training in that any training received is typically specified by the department or must receive one or more approvals from management in order to be granted.

Based on our review of the 2010 proposed budget for the SPPD the 2010 training budget amounted to 1.06% of the overall department budget. The 2008 Benchmark City Survey found that on average its member cities Police Departments spent 1.3% of their budget on training.

Through our communications with the various departments, it was found that they are open to the idea of partnering in order to deliver training more effectively but that there are no active efforts to form training partnerships with other city departments. There are limited examples of previous interdepartmental training cooperation and these were found to be effective. There is a larger degree of partnering with external agencies, typically in a highly informal fashion, e.g. sharing of training facilities and resources. There is no formal planning or strategy around existing partnerships or efforts to build such new partnerships.

Currently there is some diversity of delivery methods being employed, with classroom, field and electronic training all in place to varying extents. The use of electronic training is currently still very limited. Certain departments feel that there is considerably more room for the use of electronic training methods while others feel that there is limited capacity for electronic training options; this is likely due to the varying types of training between departments. Those areas concerning policy and compliance updates would likely serve as the most effective areas for an initial expansion of electronic training.

There appears to be considerable variation in the degree of training that is delivered internally between departments. In the Fire Department, it was found that that majority of training was delivered internally, with only specialized training being delivered through external vendors. Conversely, the Police Department was observed to depend on external parties to deliver a much larger portion of their training. Within Police, there is internal training with identified subject matter experts in various areas but a large amount of formal training comes from external sources.

Throughout departments, it was found that training is practically geared and can typically be applied to an employee's job in some fashion. There were no indications of active efforts to see to it that training topics were being steered towards areas where the department is trying to focus and/or improve. Within the Police department, it was found that there is fairly formalized tactical planning training and that within the Fire department there is a good understanding of the types of training needed to be provided but this is largely due to the institutional knowledge of a small number of senior fire fighters. On an individual basis, training is assigned or recommended based on perceived needs for improvement in a particular area for that individual, but there is no systematic efforts found to identify departmental strengths and weaknesses and to align training topics to address weaknesses at the departmental level. It was also found that departments typically do make an effort to identify on at least an anecdotal basis whether training is improving employee performance but no effort is made to make a more effective correlation between training received and employee performance.

Best Practices

Five areas have been identified as having the potential to provide cost savings or value to the City in the area of training. These five areas are vendor selection, partnerships, alignment with business strategies and objectives, training delivery, and continuous improvement. Research has been conducted in these areas from both the public and private sectors and the best practices that were found are identified below.

Best practices for training service vendor selection, specific to the Fire, Police, and Water Departments begin with the identification of a Strategic Sourcing Process (SSP)

To develop an SSP, an entity must profile the existing data. A comprehensive SSP will not only consider cost as a selection element, it will also include metrics to predict contract value for the organization. A historical analysis of RFP, budgets, and “Should Cost” models are key considerations for an established entity, such as the City. Due to the nature and complexity of service and training contracts, an organization may elect to follow best practice and appoint a specially trained employee. This employee can work conjunctively with the Procurement Department, each production department, and Human Resources to organize and maximize training efforts.

Service and training contracts require a dedicated procurement representative due to their complexity and influence. A best practice suggestion is to create a Contracting Officer Technical Representative (COTR) position (OFPP, 1994). The position can oversee the evaluation of need, RFP, award, execution, and termination processes of training contracts awarded by the Procurement Officer assigned to training and service contracts. The COTR position can also act as a facilitator and program developer between the Human Resources Department, Production Departments (i.e. SPPD, SPFD, SPRWS), and the Procurement Department to maximize training effectiveness through strategic coordination.

A strategy to establish or participate in a COTR training and certification program is a well-balanced approach that prepares the COTR to perform the job and also strengthens contract administration. It is a best practice to develop a mandatory COTR training program. While some organizations decide not to do so, their COTR still attend a basic COTR course; procurement ethics training; refresher COTR training; and Procurement Integrity training. Most COTR are motivated with incentives to keep pace with changes in procurement by completing a minimum of eight additional hours of contract administration training every three years. This is accomplished by periodically enrolling in a refresher COTR training course.

Courses in service contracting and preparing statements of work are very helpful for COTR, who typically handle complex training and service contracts. These courses help employees with the preparation of the contract administration plan. In addition to the general training on COTR duties, most agencies have the contracting officers and the COTR review the training contract in detail and agree on an oversight strategy for the contract. It is also best practice to have a COTR supervisor attend an Executive Training program to gain insight on the influence and complexity of training and service contracts.

The City should implement a COTR certification program that correlates the amount of training to the dollar value and complexity of contracts.

The first level is a minimum of 26 hours of training for those COTR who handle contracts of relatively low complexity and low training and service contract management risk. The contracts are for dollar values of \$10,000 or less and are fixed-price type or straightforward, long-term, cost-type contracts.

The second level is a minimum of 55 hours of training for those COTR who handle contracts of moderate to high complexity training and service contract management risk. The contracts are for dollar values greater than \$10,000 and cost-type contracts, specifically those that have award fee, incentive fee or other complex service and training contracts.

The third level is a minimum of 55 hours in addition to project management training for those COTRs who handle major systems contracts.

A COTR would be responsible for bridging the gap in the decision making process between the qualification requirements, qualification preferences, and the decision matrix for a training contract award. Qualification requirements are generated by the stakeholders and can include certifications, licensing, experience, and legal considerations. Qualification preferences can include value, supplemental certification, reputation, support, terms, lead-time, location, and method of delivery. A decision award matrix for best practices in training contracts should include both a scoring and a comparison approach. These should require in-depth RFP analysis by the COTR. Refer to Appendix 2 for a sample RFP evaluation scorecard developed by AXIA Consulting in the United Kingdom (AXIA, 2009). In this example, Vendor A scored 143 points out of a maximum of 207. If Vendor A's performance had exceeded the requirements for all items, they would have received 3 points for each item which would then be multiplied by the weighting for each item and their score would then be the maximum of 207. Please refer to the scoring key at the bottom of the scorecard for definitions of each score.

Best Practices on receiving the RFP responses for training

- Prioritize, date, and time stamp the receipt of responses.
- Acknowledge each receipt with an automated response.
- Have you received the responses on time? Will you still accept late responses?
- Have you received all the responses you expected? Will you pursue the outstanding responses or will you ignore those vendors who have not responded?
- Is each response complete? Have you received all the information you requested from each vendor?

Best Practices on reviewing and analyzing the RFP responses

- Analyze each RFP response using a 'score card,' such as the example shown in Appendix 2.
- Review each requirement listed in the RFP and check the answer(s) provided by the potential vendor. Use a simple 'Yes or No' marking, or a combined weighting and scoring method to indicate to what degree your outline requirements are met by the vendor.
- Vendors will tell you what their training can do and will present their product in the best light. NOTE: they will not tell you what it cannot do. A COTR can do further analysis by contacting references.
- Repeat the process, using a new scorecard for each vendor.

Other factors to consider (in addition to the training meeting your outline requirements)

- Enthusiasm of the vendor to be involved with your organization.
- The professionalism exhibited in all aspects by the vendor.
- Quality standards that the vendor has achieved.
- The vendor being able to meet your time scales and deadlines.

- Whether the vendor has the resources to handle your training requirements, or whether the vendor normally outsources the implementation to another firm.
- Costs and payment terms offered. Are these negotiable?
- Vendor's references and current clients, particularly if they are in a similar industry or business sector to your organization.

Comparison Matrix

It may be obvious from the individual scorecard results and additional factors, which software vendors / packages should be short-listed. However, if it is not quite so clear, consider preparing a comparison matrix of the results of each of the scorecards above. Refer to Appendix 3 for an example of a decision matrix regarding training vendors. In this example, vendors A and B should be short-listed and vendor C excluded from further investigation.

The comparison matrix (produced on a spreadsheet or as a word document) forms key evidence as to which vendors should be short-listed and investigated further by a COTR. A COTR can keep the scorecards and comparison matrix and use them as the basis for more detailed evaluation criteria.

A COTR is also responsible for reviewing the course evaluations conducted by Human Resources. A COTR can incorporate the course reviews in the vendor scorecard and weight the grade for future contract consideration. In this respect, the course evaluation will also provide guidance for future course development.

A key element for the success of any training contract awarded is stakeholder buy-in. Most often stakeholder buy-in is influenced by the culture of the organization. For the City, stakeholders are influenced by the subcultures of department, employee function, and working relationships. A COTR will complement efforts of the Human Resources Department and Procurement Officers by reviewing course evaluations and departmental suggestions.

Best Practices of Partnerships

There are four areas for training partnerships. These areas include core skills, specialty skills, administrative skills, and managerial development. Best practice for partnership includes identifying these four areas and mapping cross over training to effectively minimize cost and maximize value.

Managers and leaders from Fire, Police, Water, and many other departments can benefit from attending many of the same developmental courses offered by the City. These developmental groups should be cross-disciplined, highly interactive, team building, and rewarding to all participants. Each employee should be motivated to interact with other areas of the City, either by design or assignment. This strategy allows each department to share in the strategic vision set by the City and Mayor. The COTR should identify the list of managerial developmental needs and compare those with a similar list from other departments. A Human Resources Officer should work with a COTR to begin to develop RFP as defined by the needs. A consolidated managerial and leadership training approach offers an opportunity to reduce costs and increase stakeholder buy-in with a consent approach.

Administrative training can be cross-departmental when tasks and responsibilities are identified and compared. Training can occur at an enterprise level when the City employs the same information system for data entry, processing, e-mail use, cell phone use, etc. The city can save money and resources by offering courses that address the administrative needs of all departments. A COTR can work with each department in the City and information systems vendors to identify cross over in workflow.

Core skills are a higher level of cross-departmental skills. An excellent example of core skills training is EMT Certification training. While the Water Department has no need for this training, as identified by the City, both Fire and Police do. Core skills' training is a specific form of training without being recognized as specialty. A COTR can work to manage the frequency for the certification process and include participants from both departments to help control costs and maximize retention. A COTR may recognize an opportunity for a department champion to be trained and evolve into a certified cross-departmental trainer. A best practice suggestion is to continue to monitor which core skills cost the most and develop internal candidates to become certified trainers as opposed to subcontracting with Century College.

Specialty skills can include firearms training, SWAT certification, etc. The City currently has two subsets of Specialty training, which are compulsory and elective. A best practice suggestion is to trend costs for both compulsory and elective training. If either proves low value or high interest with high cost, the City should investigate a certification process for employees to become certified intradepartmental trainers. These trainers can also be contracted with surrounding cities and evolve training services into a revenue stream.

Best Practices of Alignment with Business Strategies and Objectives

It is necessary for all organizations, whether they be for-profit companies, not for-profit organizations or governmental organizations, to ensure that they are remaining on top of advancements in their respective fields. One solution to this challenge is to continually train the staff on any and all advancements that occur in their field, but this would be too costly and time consuming for virtually any organization to consider. It becomes a matter of then determining what training to provide to employees. In order to provide training with the greatest return to the organization, an appropriate measure for training is to provide the training that best aligns with the objectives and/or business strategies of the organization. In the case of a governmental organization, strategies per se, may not exist, but there certainly are objectives and the fundamental point is that any organization exists for a purpose and to receive maximum benefit from the time and dollars spent on training it should be that the training aligns with that purpose.

In order to make an educated assessment of how to align the training of the organization with the objectives of the organization, it is necessary to firstly have a clear understanding of the organizations objectives, to secondly understand how well the organization is currently meeting those objectives, and lastly to understand how the department's current training initiatives serve to help the organization meet those objectives.

A best practice which is used at Blue Cross Blue Shield of Minnesota is a training program within their sales organization which is developed for the upcoming year based on factors such as planned product launches and regulation requirements to ensure that their training activities

are supporting the goals of the organization. Feedback is solicited from sales management and business owners; and financial performance is used to gauge the effectiveness of delivered training and to identify areas where training can help to improve the organization (K. Edlund, personal communication, November 24, 2009).

This type of understanding of the businesses goals and performance can be adapted for use in a non-profit or governmental organization. The Balanced Score Card (BSC) is a management tool that is used by many large corporations to gain an understanding of how the organization is performing in both financial and non-financial terms. In rough terms, the BSC looks at performance from the financial perspective, the customer perspective, the internal business process perspective, and the learning and innovation perspective to get a more holistic perspective on what the organization is doing well. By looking at such disparate areas, an organization is able to understand how well they are meeting all of their strategic objectives rather than simply relying on financial measures of success. Such a tool could easily be adapted to help the departments of the City to understand areas where they are performing well or need to improve in order to satisfy their own missions. The key factors to include for each perspective would be: expected results, tangible metrics that can be used to judge those results, means to report on the metrics, and the initiatives intended to achieve the results (Pangarkar & Kirkwood, 2008). Once there is a clearer understanding of where a department stands in respect to meeting their mission, more appropriate decisions can be made in regards to what training can do to help the organization meet their objectives.

With an understanding of the organizations strategic objectives and how well they are currently being met, it is possible to review current training initiatives. For each initiative it is necessary to identify whether it does in fact serve to help the organization meet their strategic objectives and also whether it aids an area where the organization is currently weak or currently strong. Those initiatives that do not directly contribute to the organizations objectives should be considered for elimination. Additionally, if it is found that the organization is heavy on initiatives in areas where objectives are being met; considerations should be made to transfer some of those resources to initiatives in areas where the organization is having trouble meeting their objectives.

Best Practices of Training Delivery

Training delivery is divided into two sections: traditional training methods, and e-learning and the use of technology in training. Traditional training methods are training methods that do not require new technology. However, most traditional training methods can be delivered by the utilization of technology (i.e. CD-ROM or the Internet). Traditional training methods can further be categorized into three categories: presentation methods, hands-on methods, and group building methods. E-learning is the utilization of technology in training employees with the goals of cost reduction and maximization of benefits gained (Blanchard & Thacker, 2009). This section provides the different training delivery strategies and their characteristics. No one training delivery method is the best; the most appropriate training method depends on the situation and goal for the training. Based on the information provided in this section and the table in appendix 4, selection of one, several, or a combination of a few training delivery methods would be critical in implementing an effective training program.

Traditional training methods

Many companies use traditional presentation methods in which trainees are passive recipients of information. This information may include facts or information, processes, and problem-solving methods. Presentation methods include lectures and audiovisual techniques.

For many years, the best practice in training was a lecture approach, which involves the trainer communicating through spoken words what he or she wants the trainees to learn. The communication of learned capabilities is primarily one-way—from the trainer to the trainee(s). Advantages of a lecture are that they are: the least expensive, and the least time-consuming ways to present a large amount of information efficiently in an organized manner. The lecture format is also useful because it is easily employed with large groups of trainees. Lectures are typically used to support other training methods such as behavior modeling and technology-based techniques (Blanchard & Thacker, 2009). Some disadvantages of a lecture are: lecture lacks participant involvement, feedback, and meaningful connection to the work environment—all of which reduce learning and transfer of training. Lectures appeal to few of the trainees' senses since they focus primarily on hearing information, and pose difficulty for trainers to judge quickly and efficiently the learners' level of understanding. To overcome these disadvantages, the best practice in developing a lecture-based training program would be one in which the lecture is supplemented with question-and-answer periods, discussion, or case studies. These techniques allow the trainer to build into the lecture more active participation, job-related examples, and exercises, which facilitate learning and transfer of training (Blanchard & Thacker, 2009).

In recent years however, the common best practice has shifted to audiovisual instruction methods including overheads, slides, and video. Video, one of the most popular instructional methods, has been used for improving communications skills, and customer-service skills and for illustrating how procedures should be followed (Blanchard & Thacker, 2009). Video is rarely used alone. It is usually used in conjunction with lectures to show trainees real-life experiences and examples. The use of video in training has many advantages. First, the trainer can review, slow down, or speed up the lesson, which gives the trainer flexibility in customizing the session depending on trainees' expertise. Second, trainees can be exposed to equipment, problems, and events that cannot be easily demonstrated (such as equipment malfunctions). Third, video allows for consistent information transfer – the interests and goals of a particular trainer do not affect program content. Some problems in video result from the creative approach used. These problems include too much content for the trainee to learn, poor dialog between the actors (which hinders the credibility and clarity of the message), overuse of humor or music, and drama that makes it confusing for the trainees to understand the important learning points emphasized in the video (Blanchard & Thacker, 2009). When implementing an audiovisual training program, it would be important to minimize or eliminate the problems mentioned with audiovisual training delivery method.

Hands-on methods

Hands-on methods refer to training methods that require the trainee to be actively involved in learning. These methods include: on-the-job training, simulations, case studies, and behavior modeling.

Many companies including Chevron, Ford, Toyota, and General Electric utilize On-the-Job Training (OJT) in which new or inexperienced employees learning through observing peers or

managers performing the job and trying to imitate their behavior (Blanchard & Thacker, 2009). OJT can be useful for training newly hired employees, upgrading experienced employees' skills when new technology is introduced, cross-training employees within a department or work unit, and orienting transferred or promoted employees to their new jobs. OJT is an attractive training method because, compared to other methods, it needs less investment in time or money for materials, trainer's salary, or instructional design. Managers or peers who are job knowledge experts are used as instructors, resulting in temptation to let them conduct training, as they believe it should be done. There are several disadvantages to unstructured OJT. Managers and peers may not use the same process to complete a task. They may pass on bad habits as well as useful skills. Also, they may not understand that demonstration, practice, and feedback are important conditions for effective on-the-job training. Unstructured OJT can result in poorly trained employees, employees who use ineffective or dangerous methods to produce a product or provide a service, and products or services that vary in quality. OJT must be structured to be effective (Ketter, 2006). Since OJT involves learning by observing others, successful OJT is based on the principles emphasized by social learning theory. These include the use of a credible trainer, a manager or peer who models the behavior or skill, communication of specific key behaviors, practice, feedback, and reinforcement.

The best practice used by the Air Force for flight training is simulation training, which represents a real-life flight situation, with trainees' decisions resulting in the same outcome that would happen if they were actually flying. Simulations, which allow trainees to see the impact of their decisions in an artificial, risk-free environment, are used to teach production and process skills as well as management and interpersonal skills. Many other examples of simulators exist. The SPPD and many other police departments use firearms training simulators. Simulators are a best practice because they are highly effective and have a low operating cost. Simulators replicate the physical equipment that employees use on the job. Simulations are also used to develop managerial skills.

Some companies use case studies as a learning tool. A case study is a description about how employees or an organization dealt with a difficult situation (Blanchard & Thacker, 2009). Trainees are required to analyze and critique the actions taken, indicating the appropriate actions and suggesting what might have been done differently. A major assumption of the case study approach is that employees are most likely to recall and use knowledge and skills if they learn through a process of discovery. To use cases effectively, the learning environment must give trainees the opportunity to prepare and discuss their case analyses. Also, face-to-face or electronic communication among trainees must be arranged (Blanchard & Thacker, 2009). Since trainee involvement is critical for the effectiveness of the case method, learners must be willing and able to analyze the case and then communicate and defend their positions. The process for case development includes: identifying a story, gathering information, preparing a story outline, deciding on administrative issues, and preparing case materials.

Many companies utilize Behavior Modeling as a best practice in training courses for ethics and leadership because this method is a simulation of person-to-person interaction. Behavior modeling involves presenting trainees with a model that demonstrates key behaviors to replace and provides trainees with the opportunity to practice the key behaviors (Blanchard & Thacker, 2009). Behavior modeling is based on the principles of social learning theory, which emphasize

that learning occurs by: observing behaviors demonstrated by a model, and explicit reinforcement – refers to a trainee seeing a model being reinforced for using certain behaviors. Behavior modeling is more appropriate for learning skills and behaviors than factual information. Behavior modeling is one of the most effective techniques for teaching interpersonal and computer skills. Developing behavior modeling training programs involves identifying the key behaviors, creating the modeling display, providing opportunities for practice, and facilitating transfer of training (Blanchard & Thacker, 2009). The first step in developing behavior modeling training programs is to determine: the tasks that are not being adequately performed due to lack of skill or behavior, and the key behaviors that are required to perform the task. A key behavior is one of a set of behaviors that are necessary to complete a task. In behavior modeling, key behaviors are typically need to be performed in a specific order for the task to be completed (Blanchard & Thacker, 2009). Key behaviors are identified through identifying the task, skills, and behavior necessary to complete the task and identifying the skills or behaviors used by employees who are effective in completing the task.

Group Building Methods

Group building methods refer to training methods designed to improve team or group effectiveness (Blanchard & Thacker, 2009). Training is directed at improving the trainees' skills as well as team effectiveness. Group building methods involve trainees sharing ideas and experiences, building group identity, understanding the dynamics of interpersonal relationships, and getting to know their own strengths and weaknesses and those of their co-workers. Group techniques focus on helping teams increase their skills for effective teamwork. Group building methods include: adventure learning, team training, and action learning (Blanchard & Thacker, 2009).

E-learning and use of technology in training

Most public and private companies incorporate some type of E-learning into their training programs as a best practice. Many cities including, Phoenix, New York, Philadelphia, and San Francisco have begun implementing e-training due to its low operating cost and high flexibility. For training to help a company gain competitive advantage, it needs to be delivered as needed to support business goals to employees who may be geographically dispersed, or need the information at a non-specified time (Ketter, 2006). Training costs (such as travel costs) should be minimized and maximum benefits gained, including learning and transfer of training. For learning and transfer to occur, the training environment must include learning principles such as practice, feedback, meaningful material, and the ability to learn by interacting with others (Blanchard & Thacker, 2009).

New technologies have made it possible to reduce the costs associated with delivering training to employees, to increase the effectiveness of the learning environment, and to help training contribute to business goals. New training technologies include multimedia, distance learning, intelligent tutoring, and virtual reality (Blanchard & Thacker, 2009). Some of the benefits realized from the utilization of technology in training delivery are:

- Employees can gain control over when and where they receive training.
- Employees can access knowledge and expert systems in an as-needed basis.
- Employees can choose the type of media (print, sound, and video) they want to use in a training program.
- Course enrollment, testing, and training records can be handled electronically, reducing the paperwork and time needed for administrative activities.

- Employees' accomplishments in training progress can be monitored.

Multimedia training combines audiovisual training methods with computer-based training (Blanchard & Thacker, 2009). These programs integrate text, graphics, animation, audio, and video. Computer-based training is an interactive training experience in which the computer provides the learning stimulus, the trainee must respond, and the computer analyzes the responses and provides feedback to the trainee. This includes: interactive video, CD-ROM, and other systems that are computer-driven. Since multimedia training is computer-based, the trainee can interact with the content (Blanchard & Thacker, 2009). Interactive video, Internet, or intranets may be used to deliver training. Advantages of multimedia training are: self-paced, interactive, consistency of content, consistency of delivery, unlimited geographic accessibility, immediate feedback, built-in guidance system, appeals to multiple senses, can test and certify mastery, and privacy. The disadvantages are: expensive to develop, ineffective for certain training content, trainee anxiety with using technology, difficult to quickly update, and lack of agreement on effectiveness (Blanchard & Thacker, 2009).

Some geographically dispersed companies such as Chevron employ the best practice of distance learning to provide information about new products, policies, or procedures, as well as skills training and expert lectures to field locations. Distance learning features two-way communications between people. This type of training delivery may be appropriate to facilitate training partnerships with other cities and organizations that may be located far from the City. The main advantage of distance learning is that the company can save on travel costs. It also allows employees in geographically dispersed sites to receive training from experts who would not otherwise be available to visit each location (Blanchard & Thacker, 2009). The major disadvantage of distance learning is the potential for lack of interaction between the trainer and the audience.

NASA uses Intelligent Tutoring Systems (ITS), which are instructional systems that use artificial intelligence. There are three types of ITS: tutoring, coaching, and empowering environments. Tutoring is a structured attempt to increase trainee understanding of a current domain. Coaching provides trainees with the flexibility to practice skills in artificial environments. Empowering refers to the student's ability to freely explore the content of the training program. ITS have been used by NASA in training astronauts the complete tasks and procedures related to grappling a payload (Blanchard & Thacker, 2009). ITS have the following characteristics:

- ITS has the ability to match instruction to individual student needs
- ITS can communicate and respond to the student
- ITS can model the trainee's learning process
- ITS can decide, on the basis of a trainee's previous performance, what information to provide the trainee.
- ITS can make decision about the trainee's level of understanding.
- ITS can complete a self-assessment resulting in a modification of its teaching process.

Virtual reality is a computer-based technology that provides trainees with a three-dimensional learning experience (Blanchard & Thacker, 2009). Using specialized equipment or viewing the virtual model on the computer screen, trainees move through the simulated environment and interact with its components. Technology is used to stimulate multiple senses of the trainee.

Devices replay information from the environment to the senses (for example: gloves that provide a sense of touch). Devices also communicate information about the trainee's movement to a computer (Blanchard & Thacker, 2009). These devices allow the trainee to experience the perception of actually being in a particular environment. This technology is used by Motorola's advanced manufacturing courses for employees learning to run the Pager Robotic Assembly facility. One advantage of virtual reality is that it allows the trainee to practice dangerous tasks without putting their self or others in danger. Some obstacles to developing effective virtual reality training include poor equipment that results in a reduced sense of presence (for example: inappropriate time lags between sensing and responding to trainees' actions).

Best Practices of Continuous Improvement

For a corporation to be sustainable, focus on continuous improvement is essential. As considerations are made in regards to training in the City and ways to potentially save money on training programs, it is important to ensure that any changes would result in equal or greater effectiveness in the outcomes and purpose of these training programs. Continuous improvement in the area of training seeks to not only identify and measure specific variables to ensure equal effectiveness but also to improve the quality, alignment, efficiency, and effectiveness over time.

Throughout the research phase of this project, many companies and municipal institutions were investigated for their best practice techniques in regards to continuous improvement of training. The techniques used by the U.S. Navy's Total Quality Leadership Office (TQLO), which focuses on continuous improvement initiatives throughout the branch, stand above the rest as a best practice due to their thoroughness, applicability, and clarity. Many other organizations, such as Toyota, use similar techniques as their best practices for continuous improvement. Similarly, the best practices employed by the City of Phoenix, are equal or stand above many other cities that were researched. It is for this reason that many of the best practices presented in this section come from the U.S. Navy and the City of Phoenix.

The best practice in the process of continually improving training programs involves several steps, which should be periodically reviewed to ensure flexibility as external factors change. The first step toward continuous improvement is to identify which variables should be measured. Both process input variables and process output variables should be identified. The next step in the process is to identify how those variables will be measured. Some variables, such as cost and time, are much easier to measure and quantify. Other variables are more difficult and will require input from the people who are directly involved with this process in order to identify the best method of measurement. After identifying efficient, effective, and standardized ways to measure all of the variables, the next step is to begin measuring and monitoring the variables. Developing a base of where a company is currently performing at is essential in the process of setting targets and making improvements. When sufficient data is collected to form a base of where the performance currently lies, the process can shift into reflection, analysis, and goal setting. Finally, predetermined changes should be made in a methodical fashion so that the effects can be determined and compared to what the expected improvements in performance were.

Identify Variables to Measure

There are indeed many variables to measure in regards to training. The TQLO utilizes an Affinity Diagramming process when conducting an exercise such as identifying and grouping

many variables. “The Affinity Diagram is a tool that gathers large amounts of language data (ideas, opinions, issues) and organizes them into grouping based on their natural relationships” (U.S. Navy, 1996).

The Saint Mary’s Capstone team has conducted this exercise in regards to training variables, which are likely present within the City’s training programs. The result, which is shown below, groups the variables into categories of Key Process Input Variables (KPIV’s) and Key Process Output Variables (KPOV’s) with the subcategories of efficiency, effectiveness, and alignment. This result should not be considered a complete list because the people who are directly involved in training for a particular organization will be the most qualified to identify and organize the process variables in that organization.

KPIV’s

Efficiency: Cost, Time, Required resources, Fit to schedule, Opportunity cost, Number of lessons, Reference material provided, Focus on most important elements of subject.

Effectiveness: Quality of Instruction: Instructor energy level, presentation skills, ability to get students involved (attention), understandable voice (speed, volume, clarity), Repetition, Group work, Hands on work, Q&A, Comfort Level: Size of classroom, Size of group, Format of lesson, Length of lesson, Breaks, Amount of material covered, Environment.

Alignment: Business: Mission, Vision, Values, Objectives, Strategies, Tactics, Processes, Ethics, and Customer needs, wants, and expectations, Subject Matter: Lesson Content

KPOV’s

Efficiency: Short, medium, long term retention, Flexibility, Ease of implementation, Minimal impact on other job duties

Effectiveness: Student energy level, attention, and participation throughout lesson, Student understanding (Performance on exit exam), Effect on short-medium-long term performance and productivity, Eagerness to use lesson, Ability to use lesson

Alignment: Business: Quality of effect on business mission, vision, values, objectives, strategies, tactics, processes, ethics, and customer needs, wants, and expectations, Subject Matter: Applicability of lesson content

Identify how the data will be measured and collected

After the measurement variables have been identified, the next step in the process is to decide how those variables will be measured. Some variables, such as cost and time, are much easier to measure and quantify than more abstract variables such as the quality of the training’s effect on the business mission. Nonetheless, an efficient and consistent way of measuring each of these variables is necessary in order to optimize improvement efforts in these areas. The U.S. Navy’s TQLO considers many factors while identifying how data will be measured and collected. Some of these factors are: what is the purpose of the data collection, whether the data is attribute data or variable data, how the data will be collected, when and how often the data will be collected, and what units of measurement will be used. (US Navy, 1996).

The U.S. Navy TQLO recommends using a survey when it is faster, easier, or less expensive to use than other methods. When using a survey, the TQLO considers the questions of: What is the purpose, who will use the results, what specific information is needed, who will be responsible for developing the survey, who will be surveyed, how will the survey be administered, what

resources will be needed, how many people need to respond to the survey, what rating scale to use, etc. (Houston, 1996).

Surveys are perhaps the best practice for collecting data in an efficient and standardized way. It is important to keep in mind though, that if surveys are excessive or lengthy, the respondents can easily get tired of the process and rush through the survey or not fill out the survey at all. It is therefore highly important to keep the surveys as easy and concise as possible while ensuring that the data that is gathered is of high importance in regards to the improvement process. The respondents should also be aware of the importance that the surveys have and the effect that they will have on their experiences with training in the future.

The City of Phoenix Arizona's training evaluation method includes focus groups of employees who have completed training and their supervisors to assess the effectiveness of training courses and the changes in behavior of the trainees. The city conducts evaluations of training sessions after each course and utilizes a four point rating scale with a score of 1 being poor, a score of 2 being Fair, a score of 3 being Good, and a score of 4 being Excellent. The City of Phoenix then measures each training course with their 4 point rating system in only 4 lines. These line items are: Information was clear and useful, Opportunity for class involvement, Content and format of handout material, and overall presentation and content. This very concise and simple evaluation strategy helps increase participation and ease of analysis (IPMA-HR, 2005).

Another common model to measure the result of training programs which many businesses and municipal organizations use is the Kirkpatrick Learning Evaluation Model. In this model, four levels of training evaluation are identified. The first level is the reaction that the delegates felt about the training or learning experience. Examples of evaluation tools and methods for this level are feedback forms, verbal feedback, and post training surveys or questionnaires. These evaluation tools are quick and easy to obtain as well as inexpensive to gather and analyze. The second level of evaluation is the measurement of learning in which the increase in knowledge is measured. Evaluation tools for this level are typically assessments or tests before and after the training course, although interview or observation can also be used. These measurement tools are relatively simple to set up and are clear-cut for quantifiable skills, although this method can be less clear for very complex learning. The third level of evaluation is behavior in which the extent of learning is measured in applied job implementation. This evaluation is typically done through observation and interview with the student over time in order to assess the relevance and sustainability of the change. This measurement technique requires a skilled assessor to accurately rate the change in performance. The final level of evaluation is the result of the training on the overall business. The measurements for this level are usually already in place for organizational performance and include such indicators as revenues, growth, percentages, turnover rates, number of complaints, etc. The difficult part of measuring this level is not getting the data, but linking the data to the individual training program. (Kirkpatrick, 1994)

Measure and track variables

The U.S. Navy recommends collecting baseline data before any changes are made to the process. The baseline data can then be compared to the data that is collected after each change. The best way to compare before and after data is in a graphical format such as a Pareto Chart, Run Chart, or Histogram (U.S. Navy, 1996).

Data should be collected for each training exercise and tracked in master files, which are organized in a manner that makes them easy to use. Excel spreadsheets are one of the best practices for this process. Charts can be made so that when data is entered, it is immediately available for visual viewing.

Analysis

The next stage of continuous improvement is to decide which methods will be used to summarize, interpret, and communicate the survey results. Data can be presented in a number of ways including, tallies, percentages, mean, median, mode, ranges, and standard deviations. The type of data, its purpose, and relationships to other data sets should be considered when determining the analysis method. More complex methods of analysis such as analysis of variance (ANOVA), regression analysis, or non-parametric analysis may be the most valuable way to make sense of a large amount of data from many data sets. The U.S. Navy uses ANOVA to compare the results from different groups such as managers and employees, and regression analysis to check the relationship between two variables such as job satisfaction and intent to leave the organization (Houston, 1996).

The decision of how to display or present the data and analysis information should be made with consideration of the interests and preferences of the audience. Whether the audience is internal or external, if they will be using the information to make a decision, and if they prefer to see the data in simple graphs, statistical charts, or text summaries should all be considered (Houston, 1996).

Improvement

In order to improve the efficiency, effectiveness, and alignment of training programs in the City, improvements should be made to both the training process and the improvement process. Improvements to the training process should be made based on the analysis of training related data. Each change should be planned, implemented, and then analyzed to determine the effects of the change. Reconsidering data collection methods, types of data collected, and analysis methods should also continually optimize the improvement process itself.

Continuous improvement depends upon the ability to collect good information from multiple sources; the ability to pull people together from different levels in the organization and openly discuss information, issues, and ideas; the ability to evaluate, make decisions, and carry them out in a systematic way; and the ability to measure the progress along the way. Continuous improvement will only be successful if it is conducted with buy-in from all levels of the organization from upper level executives and management all the way down to the front line employees (Toolpack, 2009).

Recommendations

Based on the assessment of current training processes within the City and research of the best practices found in other cities and companies, the following recommendations are given:

1. It is recommended that the City compile a database of basic information such as: what training programs are in place, which vendors or products are used for each, what the delivery methods are, what the course objectives are, what the costs and contract specifics are, any requirements related to the program, which employees take part in the

program and from which departments, how many employees take part, what the scheduling requirements are, and any other indicators which are necessary in analyzing the current system and implementing best practice strategies in order to increase value.

2. It is recommended that the City use the open procurement requisition to create a coordinator position. This coordinator position, called a Contracting Officer Technical Representative (COTR) by Federal programs, should coordinate communications and information between the Procurement Department, Human Resources, and the production departments. The COTR would compliment the Procurement Department's vendor selection process; consider feedback from training submitted to Human Resources, and work to document training processes for each production department. The result would be cross-training opportunities actualized, internal trainers developed, decreased risk of exposure from contractors, and perfection of the training procurement process.
3. It is also recommended that the City should form a committee consisting of a representative from each training department and led by the COTR to implement a continuous improvement plan for all city training programs.
4. It is also recommended for the City to develop a scorecard to assess how well strategic objectives are being met and review current training to understand how well it is aligned with the organizations objectives; and to subsequently modify training initiatives to improve areas identified as needing a higher degree of alignment and eliminate training found to be non-contributory to the alignment of the organizations goals.
5. It is also recommended that the City should evaluate the compatibility between each training course's subject matter and application with the capabilities of each training delivery method to determine areas for increased effectiveness and decreased cost.

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Feasibility of Performance Based Contracts

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Purpose

The City is looking into the feasibility of Performance Based Contracts (PBC) for acquiring its service. The following is a definition and description of all aspects encompassing PBC, a SWOT analysis, best practices that have been identified as vital in the success of such contracts and recommendations on whether PBC is feasible for the City in procuring services.

Definition of Performance Based Contracts

The U.S. General Service Administration (GSA) defines PBC, also known as 'Performance based Acquisition' (PBA), as a technique that involves structuring all aspects of a purchase around the purpose and outcome desired as opposed to the process by which the work is to be performed.

The primary goal of PBC is to achieve the best value for taxpayer dollars through: financial saving, better quality and services, more innovation, flexibility and availability. There are many types of services that are utilized by public organizations, at federal, state or local levels that can be procured through PBC for example; IT, janitorial, building maintenance, health, employment, child welfare security services, etc.

The concept of PBC is the adoption of contracting procedures and specifications that enable contractors to devise the most efficient and effective way of performing a specific work contract. This approach allows contracting organizations to tap into private sector innovation by allowing contractors to make bids based on the problems that need to be solved. The contracting organizations develop methods by which the results are measured as well as the performance of the contractor over the span of the contract. This contracting method requires contracting organizations to work with contractors in order to build a measurable matrix that is attainable and sustainable. Additionally performance can be measured on a monthly, even weekly, basis allowing contracting organizations to focus attentions quickly and efficiently.

PBC are designed to enhance the performance of the duties to which the agreement of the deciding members outlines as a suitable partnership. When considering the use such contracts, one should not lose sight of the reason for using this technique. Its purpose is to obtain better performance or lower costs or both. In other words, things should work better and cost less.

The Office of Federal Procurement Policy (OFPP), Office of Management and Budgets (OMB) and the Executive Office of the President (EOP) (1998) states that the basic elements that make a contract performance based include; a contract Statement of Work (SOW) referred to as Performance Work Statement (PWS) which describes the effort in measurable performance standards (Outputs); Quality Assurance Plan (QAP) that determines if the contractor services meet the requirements set by the PWS; and finally positive and/or negative incentives based on the QAP measurements to encourage and maintain quality performance outcomes.

Analysis

The following is an analysis of PBC using the SWOT analysis. This will aid in further understanding the benefits as well as the costs that have been identified by research with citation of some entities that have adopted the use of PBC in the procurement of various professional services. It is important to note that some aspects can fall in more than one category i.e. a point can be both strength and an opportunity.

Strengths

Under the PBC process, which includes a clear PWS and performance expectations, focus is shifted from the process to results, which in the long run promises better outcomes. Furthermore, these results are stated in a measurable format, which provides the agency a clear checklist of how to evaluate the performance outcomes and the extent to which the stated objectives of the contract have been met.

PBC are very instrumental in saving money through paying on performance results (outcome based reimbursement) as opposed to payment just for the procured service (cost based reimbursement) under traditional government contracts. Additionally, cost savings are realized through; shared performance incentives and disincentives, more risk placed on the contractor and less frequent but more meaningful monitoring.

The City would be able to ensure high performance standards of services such as janitorial, health and human services, corrections, food management, building maintenance, information technology and systems, construction, equipment operations and other recurring maintenance and repair services.

Additionally, PBC have been proven to reduce costs even more in maintenance services. For example an article in Knowledge@Wharton (2009) mentions that PBC are one of the most economic ways to cover maintenance of big-ticket items. Big-ticket item examples cited in this article from the Aircraft industry were F-22 fighter jets and commercial airplanes. For such items, savings root from the decrease in major repairs due to quality maintenance and thus increased reliability. The article further quotes Morris. A. Cohen, a professor of operation and information management at Wharton, who further advises that for those companies that are cost conscious, PBC are an appropriate option because they contribute in keeping a lid on capital expenditure through extension of service intervals. This in the long run leads to purchasing fewer aircraft engines since there is more capacity utilization.

OFPP, OMB, EOP (1998) cites an example where conversion to PBC for navy maintenance resulted into immediate savings of 25 million and additional savings were anticipated through positive and negative incentives contained in the contract. The publication further mentions that; "The proposal, evaluation and award process took 30 days less than was needed for the previous non-performance based competition. Working with the industry as a team, to meet Navy aircraft maintenance requirements, resulted in dollars and timesaving. So far, performance is surpassing the contract's minimum required standards." The National Aeronautics and Space Administration is another example where they experienced cost saving by changing to contracting janitorial services through PBC that enabled them to reinstate several tasks previously dropped due to insufficient funds.

Furthermore even though it has been proved that converting from traditional SOW under traditional contracting to PWS under PBC needs increased initial upfront investment, the cost savings from PBC will quickly offset these costs. OFPP, OMG, EOP (1998)

As mentioned earlier, PBC give contractors the liberty to devise the most efficient ways in performing a specific work contract without micro management from the agency. Such liberty gives contractors room to be creative and innovative in finding the most efficient ways to solve the problem. In addition, such flexibility contributes to saving time and money that would have otherwise been wasted by the contracting organization in compiling burdensome reporting requirements and reduces the use of contract provisions and requirements that are unique to the state. (CPR 2007)

PBC methodology involves a QAP, which enables the monitoring, and maintenance of the quality delivered by the contractor. This ensures the highest value for the money being paid for the services being procured.

Furthermore, since PBC contracts are not awarded according to the lowest bidder but on expected results, the focus of the contracting organization moves to quality rather than the lowest cost. In this way, there is opportunity to choose a contractor that will provide the most value for the procured service and thus better outcomes in the end.

Weaknesses

One disadvantage about PBC is that the process favors the larger entities because of their abilities to absorb upfront cost compare to smaller firms that rely on installment payments before implementing a project.

In the City, there have been initiatives that offered opportunities for small local and minority businesses with PBC. However, there are many areas of concerns when implementing PBC:

These concerns affect both the contractors and the contracting organization:

- There is apprehension between the contractors and the contracting organization on performance measurements.
- The lack of adequate planning before the implementation of PBC serves as a major weakness in this process.
- Data cannot be interpreted based on the lack of well-gathered management information systems.
- There is also the fear of change in the scope from processing to outputs.

From the contractor stand point:

- Effective performance may be dependent on factors beyond the control of the contractor; for instance, inflation and cost of capital.
- Contractors may not be able to assume risk as a result of limited financial resources, cash flow and financial uncertainties.
- Contractors are not directly involved in developing performance measures; therefore there is lack of knowledge on how monitoring and evaluation take place.

- In most case, there is no collaboration, cooperation, partnership and teamwork between contractors and the contracting organization. Purchasing staff and contractors training are inadequate.
- Enforcement method of poor performance is not established.

Sustainability for PBC has become a genuine concern and is not simply addressed.

Findings that have bearing on sustainability are: As a result of real- world experiences in price inflation, there is a doubling up of initial scope of the contract based on actual prevailing prices. For instance, performance goals need to be reevaluated at various intervals and payment made in accordance with market or economic change; Contractors may deliver a basic package of services but because of changes in prices, work scope could be changed and variation becomes expensive most often resulting in unfinished work in process.

Opportunities

Currently, the City purchases its professional services through direct negotiation with a pre-selected firm or through RFP. In researching PBC, there are a number of opportunities and advantages for organizations to use this method for contracting services. When using performance outcomes as a requirement as opposed to requiring detailed specifications the following opportunities are available.

Maximize performance by allowing vendors to accomplish the required serviced based on their own best practices and the customer's desired outcome

Research by Eggers (1997) supports this point. He mentions the case study on Baltimore's failed attempt to utilize an education management company.

In November 1995, the Baltimore school board cancelled its \$44 million contract with Education Alternatives, Inc. (EAI), the for-profit management company running 12 public schools. There were many reasons for the failure of this contracting experiment, but a central one is that EAI had very little control over its most important employees, the teachers. EAI could not only hire or fire teachers (or have any say in teacher evaluations) but most of the teachers were openly hostile to the private company. One area where EAI had control over in hiring and firing, was in support services like maintenance and custodial. In this area it is uniformly acknowledged that EAI did an excellent job cleaning up the schools. Bill DeLoache, co-founder of Alternative Public Schools, the private company running a public elementary school in Pennsylvania says "EAI went into a hostile group of employees to retrain and motivate them. To me, that's just suicide. It's essential that the teachers at the school be on board."

EAI learned this lesson the hard way. The company now refuses to enter into a contract with a district unless it has some said over hiring and teacher evaluations. Other private education management companies such as Sylvan Learning Systems, which provides remedial education services, and Ombudsman Educational Services, which teaches at-risk youth, both insist on supplying their own employees, as do Alternative Public Schools and The Edison Project, two private education management companies, which run public schools in Wilkesburg, PA and Boston, MA.

Such freedom enables the private companies to control their labor costs and introduce innovations in the education curriculum. The Edison Project, for instance, has regrouped teachers

into teams, expanded the school day and teaches a highly respected math curriculum created by the University of Chicago in all its public schools.

PBC maximize competition by promoting innovation from the vendor base using performance requirements

Research by Eggers (1997) supports this point. He mentions how the City of Manhattan Beach, California proposed to renegotiate the current waste disposal contract even though they were not having any service problems. The renegotiation led to opening up the bidding to other firms. After all the bids were in, the City of Manhattan Beach revealed to the public for all the bidders to review. By making the bids public, this allowed the firms to revise their proposals, hence making the process more competitive. In the end, the City of Manhattan Beach saved \$1 million a year and maintained service from their current waste hauler.

In addition, Eggers (1997) mentions another innovative way to increase competition through performance contracts: He suggests breaking up the service area into grids and bid out numerous contracts, stipulating that no one contractor will be awarded all the bids. Such yardstick competition allows public officials to verify information supplied by each of the firms and assess the impact of certain common factors on relative performance. It also increases the public sector's leverage over contractors because they can easily turn over the contract to one of the other vendors in the event of poor performance.

PBC shift risk to vendors so they are responsible for accomplishing the objectives in the PWS through the use of their own best practices and processes

Research by Eggers (1997) concludes that with PBC much of the risk is shifted to vendors, who are rewarded on productivity improvement and penalized for poor performance or rising costs. He gives an example of how the state of Victoria in Australia received three new state-of-the-art prisons without putting any money down.

The three private prison operators, Corrections Corporation of Australia, Wackenhut Correction Services and Group Four, are responsible for taking over all risk associated with the facilities, including design, construction, ownership and management of the prisons, as well as the finance risks associated with changes in interest rates and taxes, insurance, and government indemnities.

In return, the private operators receive three streams of income from the government, one of which is a performance-linked fee, which represents the return on the company's equity investment, meaning the profit that can be earned that makes the investment worthwhile. By linking the return on equity to meeting a set of performance goals, the Victoria government is trying to closely tie the firm's long-term interests in the facility with the government's interests in best in the world quality services. As long as the company scores 90 percent or higher on the performance indicators, they receive the full payment. If they score under 90 percent, the performance fee drops, but not proportionately. A score of 60 percent or under would mean the company receives nothing. "It's a rather harsh formula," says one private prison executive, "but it's all based on rolling public sector averages and we always say we can perform better than the public sector, so we really can't complain."

PBC achieve cost savings through performance requirements

Research by Eggers (1997) mentions how private firms seem to be better at generating a higher collection rate than the public sector for a number of revenue collection activities, such as utility payments, parking tickets etc. One way to save money is to provide incentives for the vendors to keep a percentage of the increase collections. Below is an example Eggers (1997) points out.

In May 1996, Jersey City, New Jersey turned over the operation of its water system to United Water. When the system was run by the Jersey City, only 66 percent of the water produced was actually being paid for. The new contract provides financial incentives for the contractor to increase this percentage. If the percentage rises to 70 to 75 percent, United Water gets to keep 5 percent of the increased collections. If it rises to 75 to 80 percent, United Water keeps 10 percent of the increase in collections and if the collection rate exceeds 80 percent, this percentage rises to 25 percent of the increase in collections. The Jersey City estimates increased water revenues of \$17 million and increased sewage collection of \$32 million from the profit sharing arrangement.

There are opportunities to build in sustainable development principles into every stage of the contract

Plan for the long term, consider the wider impact and deliver environmental, social and economic improvements. Promote efficiency through whole life costing, defining clear long-term outcomes and ensuring that resources are maximized, sustained and conserved.

Threats

Threats can undermine the most sophisticated systems and plans if not approached with diligence and care. The unknown risk that must be mitigated can be time consuming and exhausting of both energy and resources. The following is an explanation of some common circumstances that can threaten the viability and success of PBC. Although not inclusive, this approach to identifying potential threats and managing the level of risk that each threat poses will help align the equipments of the contract for greater success and desired outcome.

Here are some examples of common threats that are associated with PBC. Contractors might not fully understand the requirements or metrics used to judge performance therefore presenting a challenge to get 'buy in' from the contractors. Therefore in the beginning extra effort may be required to "sell" the idea; utilizing change management techniques with strong leadership.

The contracting organization might not fully understand the scope of the capabilities of the industry in which the contract is being offered to and may set expectations to high. Inaccurate data or statistics that might distort the metrics and performance guideline may become too strict or not strict enough. Identifying meaningful measurable performance standards is imperative for the success of the project.

The integrity of the contractor may be compromised; due to performance based incentives, PBC may drive the contractor to push labor force beyond reasonable means in order to meet specific deadlines, thus creating human rights issues, and or quality issues if the integrity of the contractor waivers. For this reason it will be important to have measurable benchmarks; operations may require additional inspections and possibly testing to make sure the contractor does not try to circumvent the program.

Smaller contractors may not have the necessary resources to expedite the project schedule in order to win the contract on the basis of the combined cost of work items and time. This could cause issues with the perception of fair and equal treatment of the contracting process. Smaller contractors might also have a lack of knowledge about PBC thus discouraging their participation in the program.

Best Practices

Analysis for this project began by researching data to obtain background information on the topic and to determine business standard for PBC methods in other states and industries. In the following sections, best practices and important aspects to consider will be mentioned under each stage. A guide to best practices for Performance-Based Service Contracting (PBSC) by OFPP, OMB, EOP (1998) breaks down PBSC into seven steps:

Establish an integrated solutions team

Most of the research on PBC concludes that in order for the PBC method to be successful their needs to be senior management involvement and support in the beginning. For example, the Federal CIO counsel document, “Implementing Capital Planning and Information Technology Investment Process: An Assessment”, identified “quality buy-in by the highest level” and “collaboration of senior management to provide focus for the process” as the first steps to a successful acquisition investment review. (Federal CIO counsel 1998)

Another aspect that is important to the success of PBC is to create an acquisition team that is comprised of people from each area involved with the purchase, i.e. contracting, program, financial, user and legal offices. Each office should utilize its most seasoned employee to be part of the team. All of these skills are required to ensure a true performance-based approach, while also incorporating the entire needs of the agency. An article listed on the National Contract Management Association website states putting together a complete an effective contract team will enhance your ability to arrive at a completed contract that considers and clearly states all aspects of the needed requirements. (Sanchez, 2004)

Once the team is determined, it is important to define the roles and responsibilities of each member. According to the OMB, the guiding principles of a successful team include:

- Shared leadership roles
- Individual as well as mutual accountability
- Collective work-products
- Performance measures related to the collective work-product

Below in Appendix 5 is a roles and responsibility matrix from the OMB website. This matrix gives a good visualization of how the roles and responsibilities could be defined. Once these are determined it is the team’s responsibility to guarantee that all legal requirements are met, performance and financial objectives are in line with the strategic goals of the agency, stays on schedule and within the budget and successfully meets the agency’s needs and intended outcomes.

A report published by the IBM Center for Business of Government, supports this point. Fisher (2006), states, defining shared goals about the project is a great start, but effective projects also have clearly defined roles and behavioral expectations for all team members. Some of these roles will specifically address how the work is to be done, who is responsible for key decisions, which organize meetings, and so on. Other expectations deal with more general interactions between government and contractor staff, including work oversight and simply working in the same location with contractors.

A set of rules of conduct should be developed to alleviate any team dissension that might come about. Veteran facilitators can attest that it is important to develop these rules and insist they are follow to establish an effective team. Fisher (2006) maintains that educating employees on how to interact appropriately with contractors is another strategy for building an effective cross-organizational team. This will help all members balance teamwork and oversight.

Establishing team cohesiveness is an important aspect in the success of PBC. The team facilitator should enable the members to feel empowered to make decisions within their area of responsibility. Fisher (2006) mentions, that strengthening the connection between the contractor personnel and the contracting organization will help give power to the members. She also lists some things that team can do to build up those connections.

- Encouraging the contractor project manager to visit the worksite regularly
- Host all-hands meetings and lunches
- Take the contractor staff back to the home office for events

The project managers can facilitate these events by:

- Supporting contractor attendance
- Ensuring no meetings are scheduled during these events
- Providing conference room space for periodic meetings

Another valuable part of being a successful team is to know who your stakeholders are and to understand their interest, objectives and possible oppositions. The OMB points out the key tools the team should use when gaining an understanding of the stakeholders concerns and consensuses, and compromise. The team should also be focus on these three questions:

- What do I need?
- When do I need it?
- How do I know it is good when I get it?

An important thing to keep in mind with any type of contract is Knowledge Management (KM). KM is defined by the OMB as having “the right knowledge in the right place at the right time in the right context.” If you consider that a contract can take months to negotiate and possibly years to complete, the need to manage project knowledge is better understood. Team members can leave the team before the project is complete, taking their knowledge and understanding with them.

Fisher (2006) states KM as a best practice in spite of the short-term costs. She discusses some of the pros and cons of KM as it relates to service contracts.

Effective KM helps ensure that staff members understand how to use the tools, processes, or products that were developed. If a different contractor is selected for an ongoing

service requirement KM can help ensure that lessons learned from the first contract are communicated to the new contractor. For example, if a contractor developed a training program for the agency, a KM process would help ensure that sufficient supplementary documentation and instructions exist to conduct the training program.

On the other hand, KM is not identified as a key success factor in PBC, as most contractor managers agree, KM can be difficult and costly to implement effectively. People on both sides of the contracting relationship are usually pushed to the limit to just get today's work done. KM is often viewed as something that decreases the short-term effectiveness of the project, as it can increase the resources required, both in terms of time and money. Yet, in the long run it can be more costly to ignore KM processes when there is a gap in KM. One project manager related a story in which a contractor who had been working on a data analysis task left the project because he was moving on to another job. The data analysis code was not sufficiently documented, and the project manager spent an entire day trying to understand the code and complete the analysis.

Fisher (2006) identifies various best practices that advise contract managers to make emphasis to KM in regards to the purpose of the project and the type of knowledge involved.

- Simple recurring task content
- Focus on capturing and transferring knowledge from incremental process improvements
- What are the most frequently asked questions?
- What is the most efficient way to run a report?
- Complex, expertise-driven task content
- Knowledge transfer is often desired from the contractor back to the agency about specific technical knowledge gained or developed during the course of the contract.
- In these types of knowledge-sharing contexts, knowledge-oriented outcomes should be written into the contract as deliverables.
- Adapting to turnover
- Effective KM practices can help minimize the disruption and loss of knowledge that often occurs following turnover.
- Documentation such as creation of taxonomies (organization and classification of information)
- Social network mapping, where the contact information for expertise in key areas is documented.

Lastly, the OMB mentions that establishing a connection between the program goals and the team members' performance will create a culture of inclusiveness. The most basic incentives are those that link performance to pay. It can be looked at similar to how the contract is setup; the contractor has performance objects that carry a value in terms of pay, recognition and awards. Additionally, incentives should be associated with the "right" results.

Describe the problem that needs solving

The first step towards PBC is to determine the needs of the contracting organization. This involves answering questions including what services and outputs need to be provided. These services and tasks must be broken down into work orders for contractors.

Right from the beginning, in designing and putting together a PBC, the deliverables and milestones have to be clear, detailed, concise, specific, measurable and quantifiable. This is usually stated in a SOO, which must include clearly defined objectives and time frames, Performance initiatives and monitoring. Additionally, the SOO needs to address; potential for modification and financial requirements of the project. (Horin, Vogel, Price, Edwards 2007)

Important questions to consider while formulating contract objectives include:

- What are your departmental goals?
 - How will the contractor/Vendor support those goals?
 - What will the partnership goals are, and how should they be prioritized?
- (University of Florida)

The contracting organization then identifies the performance requirements and desired results for each task along with performance standards and quality levels. All these aspects combined establish the parameters of what constitutes success. In addition, the contracting organization must also be able to provide the contractor with accurate data of the workload and the services and equipment that will be provided.

Since PBC are outcome based, there has to be a monitoring plan established prior to issuing an ITN or RFP. This plan has to include measurement principles of contractor performance and should be tailored to intricacies of each contract. The more complex the contract that the contract it, the more detailed the monitoring should be.

Examine private-sector and public-sector solutions

Best practices for approaching solutions in both the public and private sectors stem from within the team itself. In the future there will be an abundant amount of information to sift through and analyze, having a team approach to the research portion will keep everyone informed and engaged in the process. Public sector practices are some of the best places to look for ways to handle an environment that is being considered for PBC. In some cases, their maybe a large local public company that has a vested interest in the cities in which they reside; creating relationships with these companies could provide useful information and techniques and/or pitfalls to the proposed endeavor. Engaging in dialog with other cities of similar size and geographical layout is also recommended; these types of relationships can provide new ideas and appropriate feedback. There are services within the City where PBC method can be used; this will be elaborated in our recommendations. And finally document the research; this can be done in one of two ways. One way to document research is wiki style user based contributions; the second way is a gatekeeper style recording where a single person (possibly two) updates and adds information as it is made available.

Case Studies

The following is an abridged analysis, taken from case studies, regarding the use of PBC. Case studies are used to analysis a set of research documentation in order to capture the best ideas or practices from similar industries that operate in the same field of study or practical application. In this case we are going to look at how different organizations, but public and private, use PBC in order to elevate their existing contract system.

Full-length case studies can be found in Appendix 6.

New Mexico State Route 44 (App. 6.1)

The state of New Mexico took a great initiative and embraced PBC. Facing an issue with widening the NM44 Corridor, due to budget cuts, the state decided it was time to look at alternative opportunities to complete the job, yet save on time and money. Because of the nature of the project, it was apparent that NM44 being a construction environment would be a good starting point for endeavors with PBC. FSC Group (2005) states, “By using a professional services contract to outsource design and construction management to the same company (the Project Development Contractor (PDC), the State was able to gain many of the efficiencies found in design-build projects -- flexibility, quicker construction, cost savings, and streamlined decision making.” (p.31) This helped the state leverage the relationship to a high intensity. The result came in the form of higher work standards and better warranty savings in the amount of \$89 million in maintenance costs over a 20-year period.

FSC Group (2005) stated, “NMSHTD required the road and pavement design to meet NMSHTD and FHWA standards.” In this portion of the contract New Mexico outlined the various laws, and expectations that the contractor must follow. Continuing, “However, the PDC designer and construction manager were given the flexibility to adapt the design to address the varying conditions along the 118-mile project.” With increased flexibility, the contractor was able to take accountability into his or her own hands, “...this long-term responsibility ensured that the private sector would act like an owner and the State would receive the quality it demanded.” (p.32)

Performance Based Contracting Practices in Europe (App. 6.2)

Contracting in Europe and the United States was very similar in structure up until the late 1980's. At this point there is a divergence in approaches to contract administration. Due to Europe's rapid growth and impending issue with transportation, European agencies started to change the way that they do business; specifically with contract administration. (FSC Group, 2005)

The following areas are the main drivers of change:

- Growing infrastructure needs
- Inadequate public funds
- Insufficient and diminishing staff
- Lack of innovation in delivery
- Slow product delivery and delays
- Cost overruns
- Adversarial relationships
- Claims-oriented environments
- Perceived lack of maintenance efficiency
- New European Union directives
- User frustration
- Political discontent

The study found that, “Many of the tools and techniques used in Europe can be directly and immediately applied in the United States, if legislative and political environments allow.” Taking the best practices and applying them to the United States culture and governmental format seemed to work very well due to the similarities in structure.

The best practices explored in the report highlight on a few areas of consideration. For example, “In the UK, the Highways Agency's contracting method of choice is design-build PBC, and it has almost completely replaced the design-bid-build method.” Design build focuses more on the outcome and measurable metrics that can be applied and analyzed for current and future projects. Additionally, “Another area where the Europeans are more efficient than the Americans is in writing outcome (value) specifications. U.S. practitioners are struggling with similar performance specifications. In Europe, the issue of quality in design-build contracts is being dealt with through the use of 5 to 10 year warranties and 30-year concessions.” This type of practice works well by providing the contractor more “Buy In” of the project. If the contractor has more responsibility of the future outcome, it would make sense that their sense of ownership also increases. To clarify what a concession is, FSC Group (2005) states that, “A concession is identified as a system by which a public authority grants specific rights to an organization (whether private or semi-public) to construct, overhaul, maintain, and operate an infrastructure for a given period. This system is analogous to the Design-Build-Operate-Transfer model in the United States.” (p. 40) This is an important part of the design-build part of the contract. In order to build long lasting relationships, government agencies need to have the flexibility to create a system that promotes well-being and growth of an industry. The FSC Group (2005) case study uses Portugal as an example, “Portugal, has gone from 431 km of concessions, in 1991, to a planned 2700 km of concessions in 2006 - representing 90 percent of its national highway network. The concession system is allowing Portugal to complete its strategic National Road Plan in 2006, where the use of traditional methods would take until 2014. Motorways in Europe utilize concessions for both construction and maintenance. Concession periods vary, but were commonly found to be 30 years.”

Develop a PWS or SOO

This step is to relate the performance of the contractor with incentives and penalties. Such incentive-based contracts shift the risk to the contractor, who is rewarded for productivity improvement and penalized for poor performance or rising costs. A common approach to control costs is to design fixed-price contracts rather than cost-plus contracts.

OFPP, OMB, EOP (1998) states that first step of the process is to conduct an analysis of the project. In most cases this is going to involve; seeking out subject matter experts, academic research, and examining practical examples that a subject appropriate. As the research progresses information should be cataloged in a matrix that will eventually be the framework of the project. Once the matrix is in place, the results will then need to be analyzed to review and reflect on the findings. Now that the data is collected the PWS or SOO can be developed. It is important to not, that the PWS or SOO is not the problem solver; the contractor should be the problem solver.

As the data is collected, in order to keep on track, there are a few important housekeeping tips that will help align the project and the desired outcome. Start with the acquisition's “elevator

message”, this should be an explanation of how the acquisition relates to the contracting organization's program or mission, and what problem needs solving.

Things that should be included are, describe the work in terms of the required results rather than "how" the work is to be accomplished or the number of hours to be provided. Enable assessment of work performance against measurable performance standards. Rely on the use of measurable performance standards and financial incentives in a competitive environment to encourage competitors to develop and institute innovative and cost-effective methods of performing the work.

It is important to make sure the government and contractor share objectives; this will help build the working relationship by allowing both sides to contribute to the final product. During this time it should be encouraged to identify constraints and tripping points.

The last part of the PWS or the SOO should include a background on the project, this could include historical information or research data; this will help identify risk and proper policy when dealing with unforeseen circumstances. Make the financial checks to see that everything is with inline and at the appropriate savings and time costs that the contracting organization feels are necessary to deliver a well thought out contract.

The PWS should include measurable standards or expected outputs for example; what, when where, and how well the work is to be performed. Vagueness in contract requirements and performance measurements increases risk on the vendor and therefore this may deter ideal contenders from bidding on such projects and many times will lead to failure of the PBC.

Decide how to measure and manage performance

Reviewing the success determinants

Performance data collection, analysis and accurate record keeping are critical tools for measuring and managing services. Any discrepancies in these areas will affect the performance outcomes. Performance data is part of the measuring and managing framework and should not be used as the only form of measurement. The accurate representation of the data enhances decision-making; assists in the project evaluation, appraisal of work performance; improves the delivery of services and creates accountability for results.

Performance data measures the outcomes, efficiency and effectiveness of service programs. Outcome data must be collected in order to measure value. Methodologies to measure service programs must be specified using appropriate analysis and data collection strategies. In Neumann, Jacobson, and Palmer (2008), a broader range of methodologies such as the cost-effectiveness/benefit/utility analyses was used to measure value performance for services”. This framework provides the means by which services are measured taking into account the benefit and value outcomes over financial metrics.

Determining the goals and objectives of the project and how to achieve the desire goal is an important factor in performance measurement and management. There are several factors that are taken into consideration to achieve this goal. Financial and non-financial resources are used as inputs for measurements and the delivery of products and services are used as outputs.

A quarterly framework for evaluations of performance and outcomes must be provided. Regular tracking of progress against goals must be instituted. Proactive performance measurements must be put in place and adhere to before performance gets in the “red zone”.

Adequate time must be allotted to the completion and poor performance must be given time for improvement. Contractors that consistently do not meet their performance capacities should be replaced.

There are certain factors that need to be considered in the development of the measurement framework. Data alone cannot reflect the occurrence of the results. Below are factors that should be considered in the measurement framework:

- Quantity should not be the main focus of data collection.
- Data collection should measure the timely meeting of goals and objectives.
- Tools for accountability that measure results and improve performance needs to be created.
- Analysis for cost data should be reliable and based on internal and external comparisons that have proven success.
- What was the success rate of the overall end results of the QAP and the PWS? Did they meet the program objectives and goals?

The results that the contracting organizations seek to accomplish needs to be clearly defined from start to finish in developing a measurement framework. All performance targets must be tied to the end results. It's vital to review the allotted time and resources that were allocated for project completion to determine whether the goals were realistic and attainable.

According to Neumann, Jacobson, and Palmer (2008) , four components are considered in determining measurement of services programs priority framework:

- What are the external factors that must be taken into account?
- What are the key internal actions that must be taken?
- What are the appropriate quantitative measures to access value?
- How can value be practically measured and be communicated to the public and the contracting organization?

For instance, a public health service's external factors will consider the needs of the community; a need assessment process needs to be developed, identifying gaps in services the community wants, involvement of the community in the decision making process of services that will be provided by getting input from surveys (mail or web- based), focus groups and stakeholders”

The quantitative and qualitative performance targets for the PWS and how they will be achieved must be included in the performance goals by the contractors. A schedule indicating specific outcomes and the ability to meet the performance targets or results with emphasis on services must be established. The contractor must identify and verify tools that will be used to monitor performance in their proposal.

Although the overall success of the project should represent the general goals and objectives, fewer key performance indicators should be selected and agreed upon as performance measurement and management standards.

According to Johnson (2007), two categories of outcome should be considered for performance measurement:

Effectiveness

Which focuses on meeting set standards for the performance outcomes based on SOO.

Important question to have answered include;

- Were the desired outcomes of the contract met?
- Did the structure of services rendered improve or hinder success of the contracting organization?
- Were they (contractor's) performance in accordance with contract performance standards?
- Did contractors achieve cost savings or were expenses lowered?

Efficiency

Which focuses on meeting schedules and timeliness. Important questions to have answered include:

- Did contractors complete the project in a timely manner?
- Was monitoring and evaluation process improved?
- Were relationships improved between the contractors and the contracting organization to provide the best service?
- Was the data collected accurate and useful for measuring services?

Fixed price contracts are used in securing PBC because performance can easily be measured and compared with the PWS. However, incentives can motivate the contractors to find innovative ways of performing the contract that will lead to higher profit margin.

Incentives should be used as a means of generating improved performance. The focus of the incentives should be applied to the most important area of the work. Incentives can be negative, positive or both. The types of incentives and remedies that can be used by the City in the PBC are stated as follows by CPR (2007):

Cost Based - involves the relation of profit or fees to results achieved by the contractor in regard to cost based targets.

Award Fee - entitles the contractor to earn a portion of an award fee pool established at the beginning of the fee Period.

Share in Savings - The contractor pays for developing an end product and is compensated from the generated savings.

Share in revenue - Involves the use of additional revenue enhancements and involves compensation based on a sharing formula.

Balance Score Card - appropriate for contracts with performance that is less tangible for example quality of leadership personnel, resolution of issues etc.

Past Performance - Information is used as part of the decision process to make contract awards or apply contract options.

Non-performance remedies - includes particular procedures or remedies for reduction in payment if services are not performed or do not meet contract requirements.

For example, where negative incentives are used, the deduction should represent as close as possible the value of the service lost. This amount is usually computed by determining the percentage of the contract costs associated with each task. (OFPP, OMB, EOP, 1998) Additionally providing non-monetary incentives to reward contractors will contribute to decreasing turnover.

Cost - reimbursement contracts awarded according to contractor level of effort should be used as an incentive means. For instance, the contracting organization should be awarding janitorial service contracts to firms that have gained previous knowledge and experience thereby reducing the time and material/labor for contracts implementation.

Contracts for janitorial services at fixed price could include management, supervision, manpower, material, equipment and supplies that are necessary to provide these services but added pay for performance incentives will motivate the contractors to deliver services in a responsible, cost effective, environmentally friendly manner.

Relationship building could serve as some means of effective incentives. Contractors and the contracting organization should foster teamwork. Contractor's management must be encouraged to reward outstanding performance.

Select the right contractor

The selection process of a contractor takes into account the goals and objectives of the agency that needs the service. The specific requirements are listed in the request for proposal (RFP). Contractors that desire to take part in the bidding process must be willing to accept those requirements. In most cases, the contracting organizations will seek testimonial from other organization about the work ethics and mode of operation of the contractors. Based on these testimonials and references, and the contracting organizations own needs, contractor selection is made. It is vital that the agency perform its own due diligence before awarding contracts. A thorough due diligence will alleviate surprises and possible loss to the agency.

The PWS and QAP are two of the major contract proposal documents that will be used for the selection of right contractor. In the contract RFP, the integrated solutions team must acquire listed qualifications, skills and experience. Important areas to consider include: (OFPP, OMB, EOP, 1998)

- The contractor must have exhibited skill, experience and background in the service they are proposing.
- Does the expertise demonstrate team experience, qualification and successful experience of similar projects?
- A minimum of 5 years experience in developing, coordinating and implementing the service.
- Can the contractors ensure project continuity by providing innovative and cutting edge perspectives that will lead to sustainability?
- Is the contractor flexible and has the tenacity to adapt to changes.

Awarding on contract is a major decision and in most cases, is capital intensive. As such, it is prudent that the contracting organization apply due diligence in the selection process. Normally the due diligence is preceded by down selection; which is a process by which careful

consideration is used in the limitation of the competitive pool to those contractors who will most likely offer a successful solution. All areas of the proposals must be considered. The percentage of the performance standard will rarely be 100 percent, because the cost of the service is directly related to the standard. (OFPP, OMB, EOP (1998))

Contracting organizations must formulate specific standards and if necessary, give the contractor the option to present various targets for the service. Standards may be published or well recognized, industry-wide standards, or may be established by the contracting organization. If the agency is to develop the standards, it should have the industry input to ensure they are realistic and effective. This may be done through public meetings, public comment on proposals standards, or Request for Information (RFI) per FAR 15.405. For contractors to best perform, contracting organization selection of contracts must enable the contractor to do business the right way by employing integrity and business ethics in his job execution. Accountability and operational controls must be an integral part of the operation. Contracting organizations should rely on experience, knowledge and historical data achieved by contractors for evaluation.

Another important aspect to consider during the selection of the right contractor is assessment of solutions for issues of conflict of interest. Contracting parties in the past have used claims and litigations for conflict resolution. This process is very expensive and takes up a lot of time. There are other more efficient and effective ways that should be employed. The following listed conflict resolution methods and techniques should be applied based on the prevailing conflict.

- Direct openness and communication constantly within the procurement process limits confrontations and conflicts.
- Partnering is used for the avoidance of disputes. The contracting organization and the contractor discusses the common conflicts after the contract is awarded
- Partners develop performance goals, locate areas that develop into conflicts, and devise ways of resolving arising problems.
- Ombudsmen have been used by some contracting organizations as means of resolving conflicts and confrontations within the acquisition process. The Ombudsman does investigation on complaints; a non-binding report is suggested with solutions to resolve the problems.
- Alternative Dispute Resolution (ADR) - Under this solution, any voluntary processes or procedures that are employed to resolve disputes will not lead to litigation. This is inexpensive an effective way to resolve contract conflicts. Some disputes resolution methods used in ADR are: Mediation, facilitation, mini- trials and conciliation.

Manage performance

There has to be a QAP, which corresponds directly with the performance standard stated in the PWS. This measures contractor performance to ensure that contractors meet the PWS requirements (goals). This aids the contracting organization in maintaining quality in the service being procured and more so a consistent check list to measure against in their Post award management.

In order to ensure efficient performance management, there should be appropriate positive and/or negative financial incentives based on the QAP measurements that was set in the initial planning stages. This will place sufficient financial risk on the contractor and encourage them to strive for

the best performance possible. The City of Maine utilizes this “carrot stick” approach where for the current contract year, PBC that provide reward for exceptional performance and penalties for performance below standards have been implemented. (Johnson 2007)

Furthermore in regard to incentives, the Payment structure should be tied to performance elements where different outcomes qualify for different payments which in the end ensures achievement of the outcomes set in the PWS. Citing the City of Maine, it awarded Medicaid managed care contract for behavior health in June 2007 where there was a 6% withhold on performance standards that were based on customer and Provider satisfaction, and successful dispute resolution. (Johnson 2007)

There should be some kind of tracking of the PBC incentives to pinpoint the most successful incentives as well as modify those that are not a best fit for a specific contract. The contracting organization has to ensure that the right procurement Personnel are in place to manage contracts that are performance based. Important skill set requirements include: Knowledge of contract law and current Leverage, strong negotiation, arbitration and communication skills and abilities such as compliance measurement and mental flexibility. (University of Florida, n.d.)

Furthermore, training of contract personnel on how to write PWSs and QAPs is an important element under contract management. These two areas are very crucial in designing PBC and therefore the contracting organization has to ensure that they are sufficient and address all the questionable areas that vendors may have in considering the provision of their services. Such training can be done through both internal and external resources.

It is of importance to establish strong relationships and collaborative activities with vendors, as this will greatly increase the chances of success and satisfaction of the PBC. Also in the long run, this maintains lines of communication, and presents the contractor the opportunity to learn more about the business problem they were hired to solve. This can be done through activities such as: visits with the vendor, keeping an assertive but friendly attitude, documentation of communication, prompt communication of concerns that may come up about set contract attributes.

There should be provisions put in place to reward contractors that demonstrate well define progress consistently. This encourages and supports top performance outcomes from contractors therefore ensuring the achievement of the PBC set goals. This further decreases contractor turnover and can be done through both monetary and non-monetary incentives.

Best Practices Summary

The best practices section reports on primary tools and techniques that should be used as guidelines whenever an organization wants to successfully implement performance-based approach to service contracts. The techniques presented should make acquisition of services more cost effective by reflecting a more accurate cost estimates associated with individual line items.

The Identification and implementation of these best practices allow the organization and the contractors to accomplished the project goals and also streamlined the process for better

outcomes. When these best practices are followed through, and all requirements in this process are adhere to, a “win/win” environment will be created where all parties benefit. For example, contracting organizations will be able to determine the work that must be done and what is the best achievable process.

Recommendations

This section will begin with an assessment to answer the question of if PBC are feasible or not. This will be followed by guidance and strategies for implementation of such contracts. The structure that will be followed in presenting these implementation strategies follows the seven steps identified under best practices that are of importance in ensuring success of PBC in the procurement of services.

Are PBC feasible?

PBC, although relatively new to companies and government organizations in the U.S., there is enough data to suggest that some areas of contracting have enjoyed significance success with PBC while others have not been able to produce the same results. In answering the question of, whether or not PBC is feasible, it is important to consider what type of industry, and what is the desired outcome of the contract. This will determine if PBC will be appropriate to the contracting need.

One of the primary challenges is the determination criterion as to when to use PBC. The development of the main characteristics of a performance contract is predefining the performance standards on a long –term basis. If the performance standards can be developed to ensure that the objectives are effectively and efficiently met and where payment is linked to objectives, then the question of whether PBC is feasible or not will be answered. As mentioned in the best practices, there are some fundamental predefined components and questions that must be considered in determining when PBC should be used. These include:

- Extent of project characterization – Does the service have measurable attributes that will enable performance measurements
- Are the overall desired outcomes of the project clear and achievable?
- What are the required services for the results to be accomplished?
- When the performance standards are reviewed; are they complete, reliable, accurate and cost effective?
- When monitoring methods are developed, will they be able to measure the success of the project?
- Extent of regulator support - Are there minimum agency mandatory regulation requirements that enable the contractor to perform the contract timely?
- Are Legal agreements flexible and achievable?
- There should be adequate time to prepare and award contracts
- What impact will the failure of the PBC have on the City?

Also, when considering the feasibility of PBC, the concerns of what must be done when outcomes are not met need to be addressed. Smith and Grinker (2004) write, “Another dilemma is how to determine the government’s obligation when contractors fall short of performance or outcome goals. Should government punish the nonprofits if they have made a legitimate effort

(measured by activities and outputs), or should it provide technical assistance in an effort to improve performance?”(p.27)

These are the final pieces, and very important keys, that will ultimately help the organization decided on the best approach to contracting for the services or projects that need to be provided.

If and where PBC is feasible, as we have seen in the previous sections, PBC has been used in a variety of different industries and countries. Some have seen great success with PBC, depending on how the contract is implemented, monitored, warranties consideration, and how the concessions have been negotiated. It's apparent that the success of PBC lies in the ability of the organization to understand the multiple dimensions the PBC uses to be effective. Some areas have proven success and some have proven to be more challenging to implement PBC. A number of examples have been cited all through this report of services, which would be a best fit for PBC.

For the City specifically, from the list of commonly procured services, the following may be procured through PBC because of the different characteristics that enable quantification and measurement of performance outcomes. These include but not limited to:

- Advertising -measurements based on the effectiveness of the specific adverts
- Custodial services including security services
- Janitorial services (easily tested)
- Building maintenance in regards to recurring maintenance and repair services
- Rubbish waste removal
- Food management

United States General Accounting Office (GAO) (2002) mentions that the services widely available in the commercial sector such as those mentioned above lend themselves to PBC because; the measurement and specification of outcomes is pretty straight forward; the services do not present substantial risk in this case to the City and lastly, contracts for such services would not require the City to specify unique requirements or necessitate the City to have a strong role in how the contract is executed.

Other services that the City may consider for PBC include;

- Information technology support services -outcomes measured on basis of improvement in operations and efficiencies in IT resources
- Road Construction -understandable and obtainable benchmarks
- Information services -tangible outcomes
- Maintenance for big ticket Items -performance is measured through the number of repairs needed/Break down intervals
- Correction services
- Human and health services

In regard to services that do not lend themselves to PBC, the following are some areas that have not experienced the same success due to their immeasurable characteristics. It should be noted that this is not to say it will not work, but that historically it has not proven effective.

- Door to door surveying (lack of measurable success)

- Monitoring services (lack of measurable success)
- Multiple city operations (lack of consensus on metrics)
- Temporary concession stands
- Small ticket Items

Additionally, contracts that are complex, technical and unique to the City or high risk do not lend themselves to PBC. GOA (2002) mentions that this is the case for contracts where the specific agency is not able to forego maintaining a strong role in specifying how work should be done as well as overseeing the work.

How to implement PBC

Since this is a new concept to the City, it is important to begin on a small scale with some pilot projects that will eventually lead to a wider use of PBC in contracting other services. With the success of the pilot projects and gained experience, the City can then incrementally establish this approach to more contracts based on measurable and objective performance standards by which contractor performance is evaluated.

In implementing the performance-based concept to service contracts, the following recommendations will provide a guideline and key success factors of what needs to be considered and done in this process. Due to the wide and varying dynamics of different contracts, these guidelines are on a broad base. However, it contains valuable information that all City personnel involved in contracting should consider.

Establish an integrated solutions team

In order to achieve successful results with PBC, senior management needs to get involved and support the PBC process from the very beginning. It is important to build a team with well-informed people for each area involved in the contract process. The team should have defined roles and responsibilities as well as rules of conduct to enable cohesiveness among its members.

There is going to be a lack of knowledge in regards to PBC and its associated terminology. There are not a lot of road maps on how to structure PBC. Since there may be uneasiness about contracting in a new way, it is important that the contract team be educated on PBC prior to conducting one. For example educating people on the way they think about contracts and the way they look at the outcomes. The shift will be focusing on the “what” and not the “how” a contract will be performed. Another area people will have to adapt to is to be more open during the contracting process. There also needs to be a willingness for both the contracting organization and the contractor to communicate during the procurement process. Letting go and not micro-managing contracts is another difference between PBC and request for proposals. In order for the contractors to perform the job using their best practices the contracting organization will need to step back and let them do their job.

These are a few major elements that need to be considered when creating a solutions team for PBC. Refer to the best practice section above to get a more in-depth look at this step. According to the Department of Land Industrial Relations-Office of Community Services, formal training in regards to PBC is a helpful tool to gain more knowledge on the implementation process.

Describe the problem that needs solving

Once the solutions team has been established and all members have an understanding of the PBC process, the next step is to describe the problem that needs to be solved. The problem has to be clearly defined in order for qualified contractors to understand enough about the problem and the existing environment to develop effective outcomes.

Some questions to consider when sufficiently defining the problems:

- What are your departmental goals?
- How will the contractor/Vendor support those goals?
- What will the partnership goals be and how should they be prioritized? (University of Florida, n.d.)

Examine private-sector and public-sector solutions

Once the problem has been clearly defined, the next recommended step would be to observe how solutions for this problem are approached in both the public and private sectors. In the public sector, it is helpful to connect with other cities of similar size and geographical layout is important when looking into solutions for problems that are being considered for PBC. In the private sector, looking to larger companies who may have a vested interest in the cities where they reside. Creating relationships with these companies may lead to innovative solutions and/or lessons learned to the anticipated PBC.

Documenting the research from the public and private sectors is useful in order to make the data readily available to all members of the team. Refer to the best practice section above to get a more in-depth look at this step.

Develop a PWS or SOO

In developing the PWS, OFPP, OMB, EOP (1998) provides the following recommendations in aspects of content, style and method.

Content

- Identification of those outputs that are essential. These should be included in the Performance Requirement Summary (PRS), which typically lists tasks, deliverables, standards and quality levels. (See Appendix 7 for sample)
- Outputs should be articulated in clear, concise, commonly used, easily understood, measurable terms
- There should not be detailed procedures of how the service should be accomplished but rather the PWS should be structured around the purpose of the work to be done. An example cited by the publication is; “instead of requiring that the lawn be mowed weekly, or that trees be pruned each Fall, state that the lawn must be maintained between 2-3" or that tree limbs not touch utility wires or buildings.”(p. 20-21)

Another example given is the Air Force which saved 50 percent by specifying that floors must be clean, free of scuff marks and dirt, and have a uniformly glossy finish instead of requiring the contractor to strip and re-wax floors weekly.

The PWS should be a stand-alone document with minimal references to regulatory or other guidance with the exception of mandatory requirements that must be referenced.

Style

- PWS should be in written precise terms and clear concise wording with avoidance of broad, vague statements or overly technical language
- The document should use the active voice, task oriented statements and emphatic form of a verb to establish binding implications. For example "The contractor shall or must provide XYZ versus XYZ will be provided. (p. 21)
- Abbreviations and Acronyms should be avoided to prevent misunderstanding. If these are used, they should be defined the first time they appear in the document and/or should be included in the glossary.
- Ambiguous words and phrases should be avoided. Examples of more precise statements the publication gives include: "keep driveways clear of snow so that depth does not exceed two inches" versus "clear snow as required"; or "Maintain grass between two and three inches high" rather than "or" "mow grass as necessary."
- There should be consistency in the terminology used in the PWS when referring or addressing the same things.

Method

- An interdisciplinary team approach should be used in the development of the PWS, and should include the contracting officer and a technical representative at a minimum.
- The program manager, contracting organization head or a representative at that level should establish the team.
- Other team members may include: an Attorney, a writing advisor, and a representative from user staff. If and when possible, the team should include a member with experience in PBC techniques.
- There should be a designated team member to assume the role of a facilitator once the team is established.
- Using this team approach results into better final outcomes and limits and addresses potential disagreements among contracting organization staff prior to award and during contract performance.
- Since the implementation of PBSC lies mainly with the program manager, this approach should involve such key personnel early in the acquisition process.
- Program managers are usually designated as the primary points of contacts for PBC projects.
- Contract personnel should be sure to actively promote the benefits of PBSCs to program managers.
- Continued collaboration through out the team and with other external contacts during the acquisition process is vital. Examples cited by OFPP, OMB, EOP (1998) (p.22-23) were this approach was successful include:
The GSA; where SOW preparers and contract personnel worked together from the beginning. They received PWS training together and developed a strategy for implementing PBSCs in the pledge.

The publication further gives the Environmental Protection Agency (EPA) as another example where it assembled a team to develop methods to contract for superfund remedial projects using PBSC. The team which consisted of; a contracting specialist, the remedial section chief and the

project officer was able to devise techniques under PBSC that resulted into a contract award approximately \$1 million less than the initial estimate by the government.

- Solicitations for information purposes should be utilized whenever possible including a draft SOW and request for comments to refine the PWS.
- Reviews and input from potential sources provides an effective avenue to screen the PWS accuracy, competitiveness and clarity. This additionally presents the opportunity to identify aspects that would unnecessarily restrict competition; increase costs; restricts contractor innovation; and facilitate early involvement of industry. At this stage, potential sources can be asked if certain quality requirements are significant cost drivers so that the contracting organization can evaluate the value of the extra costs involved. (See Appendix 8 for a sample 'Request for Comment')

The Department of Health and Human Services (HHS) issued a draft solicitation for computer maintenance services and through this were able to get useful comments from the industry which led to the re-evaluation of some aspects in their technical approach and recognition areas that needed clarification.

If possible, draft RFP and solicitations should be circulated electronically to enable more competition and save time and money. The publication mentions that many contracting organizations should place acquisition information on the Internet with an established link to their home page.

There are a number of existing models of PWS that have been tested in application that the City can utilize in this process without the need to start from scratch. OFPP, OMB, EOP (1998) presents a list of generic PBSC developed by working groups to assist contracting organizations in converting to this type of contracting. The list includes; Call center contracting, Software development, training services and computer maintenance (p.68)

Decide how to measure and manage performance

Cost-effectiveness/benefit/utility analyses can be used to measure value performance for services. This tool provides a means by which services are measured taking into account the benefit and value outcomes over financial metrics.

Additionally, in deciding on the matrices to use in the measurement of services under PBC, a report titled 'Seven Steps to Performance Service Acquisition', states the following guidelines that may be followed/considered:

- Refer to and use commercial quality standards such as; International standards organization (ISO) 9000 to determine quality standards as opposed to creating own matrices to determine quality standards. These ISO 9000 series have increasingly become popular with US firms in indentifying suppliers who meet quality standards in a variety of areas including the service industry. These commercial standards can be applied in both the selection and evaluation stages
- Have the contractor propose performance metrics and QAP rather than the City developing them. The report mentions that this is especially suitable with the presence of a SOO, which enables contractors to develop their own solutions thus making this approach a logical sequel.

- There should be a few meaningful measurements selected with favor for those that directly tie to the project objectives and less costly to implement.
- The City should ensure that the right to review and revise the contract is enacted in each of these PBC. This will allow for negotiated changes with the contractor and will additionally help in efforts to answering the question of whether 'The right thing is being measured or not'.
- Use incentive type contracts (elaborated further under step seven)
- Use of fixed Price incentive contracts
- Consider using 'Award Term' which is defined as a contract performance incentive feature that ties the length of the contract to performance. i.e. good performance results in extension of the contract while poor performance results into cutting the contract short

Select the right contractor

- When appropriate, competitive negotiations should be used to acquire services to ensure that contractors with the potential to produce the best value are chosen
- Selection should be based on the goals and objectives of the City i.e. Selection criteria used should be in alignment with the overall organization objectives
- Seek testimonials from other contracting organizations about the work ethics and mode of operation of the contractors and use these in deciding on the best contractor for the job
- Before awarding contracts, the City has to make sure that additional thorough due diligence regarding the contractor is carried out to ensure best value for money, i.e. sufficient checks of previous contractor performance and other relevant factors and ensure capable and responsible contractors. (FCS Group 2005)
- Formulation of realistic and effective performance standards on the basis of; recognized, industry wide accepted standards as well as input from contractors on targets for services

Manage performance

Incentives

As mentioned earlier, incentives are one of the best strategies to use in order to generate improved performance and these can be applied in the most important areas of the work. OFPP, OMB, EOP (1998) mentions that the important aspects to consider in implementing incentives include:

- These should be applied to the most important aspects of work as opposed to every individual task
- If negative incentives are to be used, deduction should represent the closest approximation possible of the service value lost. The cost of the lost service value is usually calculated by determining the percentage of contract cost associated with each task. For example if a task represents 10 percent of the contract costs, then 10 percent will be set as the maximum deductible amount in an event of failure to perform the task.

The publication cites the following example in relation to the above: "The Navy aircraft maintenance contract contains both positive and negative incentives. As a positive incentive, the material management function was turned over to the contractor. Material is obtained on a cost reimbursable basis, but the contractor earns a 15 percent positive incentive for cost avoidance. This "bonus" is calculated by comparing actual material costs with historical material costs adjusted by the Consumer Price Index. As a negative incentive, the contract is priced at a ready

for training rate of 75 percent. To the extent this level of performance is not attained, the contract price is reduced proportionately. For example, an actual ready for training rate of 60 percent results in a 20 percent price reduction”. (OFPP, OMB, EOP 1998, p.17)

- The choice of incentive structure must reflect both the value of the various performance levels to the government, and exhibit meaningful incentives to the contractor
- Performance incentives have to be challenging but reasonably attainable
- Incentives are most appropriate for contracts that are complex, have a high dollar value, or have historically had performance or cost overrun problems

NASA is cited as an example where in its cost type space station contract, 25 cents is docked for each dollar of cost and over run, but earned on each dollar saved. Additionally all fee payments are provisional and subject to recoupment if station hardware fails.

- Incentives have to collate with results where there is a proper balance between cost and performance and scheduled payments. It is reaffirmed that contracting organizations have to avoid rewarding contractors for simply achieving minimum standards of contract performance.
- There should be verification of the effectiveness of the established incentives to a specific contract.

NASA achieved cost reduction of 350 million for its space shuttle program in FY1990 through the use of special incentives such as award fees for exceptional cost performance and value engineering provisions. The purpose of this award fee was to incentivize contractors to initiate innovations, cost management and reduction measures that cut operational costs while maintain exceptional performance. This award fee was only available when contractors earned excellent performance rating during the award period. For costs that exceeded ‘should be’ estimates, there was no award fee earned.

Finally, on a General scope outside the seven step structure above, to deal with the problem of PBC complexity which in turn discourages smaller businesses from enlisting as potential contenders for such contracts, in order to design all inclusive PBC that also attract smaller companies, the City will have to include; intermediate performance measures and incentive pay milestones, there should not be a restriction of PBC to expensive long term acquisitions, acquiring some smaller service contracts lasting a few months using PBC therefore giving small businesses the chance to participate. (Newell 2008)

Potential pitfalls/challenges stemming from PBC implementation

There are many pitfalls and challenges that arise from the implementation of PBC. These include:

- Contracting organizations are unable to specify deliverables and are challenged when making decisions on what kind of services and outcomes it really wants the contractor to achieve.
- There are policy disagreements as a result of difference in industry standards
- Tracking and payment distribution for individual budget line items associated with activities, outputs and results become a dilemma.
- There is difficulty in determining the measurement of performance i.e. should performance be solely measured by activities or by output.

- There arise difficulties in setting goals for contractors who are high achievers i.e. how will performance incentives be measured and awarded.
- There is challenge in determining what form of enforcement methods are to be taken when contractors under perform i.e. should they be totally reprimanded when they had performed some of the work?
(Smith & Grinker, 2004)

Lesson learned from Past implementation of PBC

Based on past experiences in PBC, the following lessons have been learnt as projects were implemented:

The PWS/SOO must depict very clearly measurable and achievable objectives and these objectives must be shown in the QAP. If the SOO states from the beginning the services, outputs and outcomes that are required then, it becomes easy to develop performance standards and indicators in the QAP.

Whenever the PBC approach is been used for procuring services, the following must be included in the contracts:

- Modification factors
- Financial requirement for incentives must be spelled out.
- Careful analysis should be made when sites are selected.
- Adequate competitive incentives payment must be kept for final implementation
- The budget must be in line with the cost to complete the project, and all tasks should be linked with activities cost.
- Sufficient time and resources must be provided for contract acquisition.
- Contracting organizations must utilize confliction resolutions techniques to avoid disputes, protests and litigations.
- Installation staff must be involved in the process at the early stage.
- During the solicitation process regulatory factors should be considered.
- Contractors with previous experience with fixed price contracts coupled with cutting edge solutions should be considered.

(Vogel, Price & Nobils, 2007)

Recommendations Summary

PBC is a great way to do business in the appropriate setting, because in the end, it is all about the most efficient use of taxpayer dollars. PBC is flexible and has enough diversity to develop an environment that benefits the preferred outcomes of both the contractor and Government body. Lessons learned from other organizations will help avoid the pitfalls and hazards associated with PBC. The seven steps will help guide in the construction of the contract, and the team members who have done the research and put in the effort into making the best contract will insure the success of the program.

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Conclusion

The overall goals of this project were to obtain best practices for sustainable and cost effective procurement processes for the City. There were four procurement process areas covered in this project which include; Cell Phones, Training Contracts, SPRWS Water Meters and Feasibility of Performance Based Contracts. Based on the findings, one can conclude that the cost effective and best practices recommendations provided in this project will enable the City to facilitate decision making and generate the most cost effective and sustainable methods in the procurement of these contracts.

The Cell Phone work was conducted to analyze the City current cell phone procurement process in comparison to best practices in the cell phones industry. The recommendations stated in this research are to provide a framework that aligns resources with the organization objectives.

Training Contracts best practices analysis and conclusions will allow organizations to aligned cost with all training programs and provide tools and techniques on strategies that are sustainable.

The replacement of Water Meters has a long-term value for the residents, and this work has provided sustainable concepts for the implementation of this project. There are cost effective tools and measurable indicators that are presented in this project that will place higher value on the procurement process for Water Meters.

Lastly, Performance Based Contracting (PBC) best practices developed in this project will generate the most efficient way of doing business allowing the tax payers dollars to be used effectively and efficiently. The seven steps identified under best practices serve as a guide that will allow both the organization and contractors to avoid pitfalls and failure in PBC.

The City is encouraged to apply the related findings on best practices for procurement as described in this project to achieve the most effective, efficient and sustainable results. While there are many recommendations for the City that arise from this analysis, success will ultimately depend on the implementation and commitment to adhere to these recommendations.

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Cost Savings Analysis

Cell Phone Procurement: Projected Savings

Current Information Gathered by City of Saint Paul's Human Resources Department					Departmental Pooling Analysis		
	Phones	Blackberry	Monthly Costs	300 minutes per phone	Sprint/Nextel Pooling	Alltel Pooling	Verizon Pooling
City Attorney	2	5	\$ 361	2,100	\$ 217	\$ 280	\$ 210
Council	3	8	688	3,300	277	440	329
DSI	131	7	4,116	41,400	3,307	5,519	4,133
Fire	13	10	734	6,900	570	920	689
HR	0	3	150	900	90	120	90
Human Rights	0	1	50	300	45	40	30
Info. Systems	25	38	2,986	18,900	1,507	2,519	1,887
Library	4	9	608	3,900	307	520	389
OFS	0	4	150	1,200	120	160	120
Parks & Rec.	131	19	5,829	45,000	3,600	5,999	4,493
PED	3	4	310	2,100	217	280	210
Police	141	36	30,369	53,100	2,767	7,078	5,301
Public Works	115	9	5,410	37,200	2,985	4,959	3,714
Water	152	4	4,940	46,800	3,690	6,238	4,672
Misc.	21	0	1,768	6,300	540	840	629
	741	157	58,469		20,242	35,911	26,895
				Blackberry w data/access	10,007	5,487	3,140
				Laptop connect	12,146	20,230	15,791
					42,395	61,628	45,826
					12	12	12
					508,740	739,535	549,913
current estimated cost - annual			\$ 701,628	potential savings	\$ 192,888	\$ (37,907)	\$ 151,715

Summary of Departmental Pooling Analysis:

The analysis of the Depart Wide Pooling takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unicel, and Verizon). The analysis used data arrived from the following sources: information gathered by the City of Saint Paul's Human Resources Department and from the contracts of the four various carriers.

Sprint/Nextel offers five different pooling plans: 400 minutes for \$29.99/month, 1000 minutes for \$44.99/month, 1400 minutes for \$59.99/month, 2000 minutes for \$74.99/month and 4000 minutes for \$112.49/month. The Blackberry phones will also incur monthly access as well as data usage fees. With a phone plan this cost is \$63.74 per Blackberry and would cost the City \$120,086 annually. The last charge is in relation to the connection of the 405 laptops and "pocketcops" for the City's police force. This cost is \$30 per month for 40MB. The total cost of Sprint/Nextel would be \$508,740, which is a savings of \$192,888 from the original estimated cost of \$701,628.

Alltel does not offer a group pooling rate, therefore is the city would want to take advantage of the pooling it would still need to manage the plans for each of the phones. If a phone is to be used in a pooling plan than there is a monthly cost of \$39.99 and each phone receives a 600-

minute allowance. In total this would be \$430,932 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Alltel charges a fee of \$34.95 per Blackberry and would cost the City \$65,846 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$50 per month for 40MB. The total cost of Alltel would be \$739,535 for an increased cost of \$37,907 from the original estimated cost of \$701,628.

Verizon has a pooling plan that has a standard plan rate of \$27.99 and an added fee of \$2 per phone if that phone is participating in a pooling of minutes. With Verizon each phone would have an allowance of 300 minutes. The annual cost to receive this option for each of the 898 phones would be \$322,740. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$549,913 for an annual savings of \$151,715 from the original estimated cost of \$701,628.

Current Information Gathered by City of Saint Paul's Human Resources Department					
Total Cell Phones	741	current estimated cost	\$		701,628
Total Blackberrys	157				
Total phones	898				
City Wide Pooling Analysis					
	Minutes per month	Sprint/Nextel	Alltel	Unicel	Verizon
300 minutes per phone	269400				
# of max minute pooling plans	68	4000 pooling plan	600 min./line/all pooled	no pooling	300 minutes
cost of minute pooling plan		\$ 91,792	\$ 430,932		323,172
each additional line	\$ 15	161,640			-
Blackberry with data/access		120,086	65,846		37,680
Laptop connect		145,751	242,757		189,491
		\$ 519,269	\$ 739,535		\$ 550,344
potential savings		\$ 182,359	\$ (37,907)		\$ 151,284

The analysis of the City Wide Pooling takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unicel, and Verizon). The analysis used data arrived from the following sources: information gathered by the City of Saint Paul’s Human Resources Department and from the contracts of the four different carriers.

Sprint/Nextel offers a 4,000 minute pooling plan at a per plan cost of \$112.49/month. To cover all of the phones with a 300-minute allowance per phone, the City would need a total of 68 different plans. The cost for these plans would be \$91,792 annually. To put the phones into a pooling plan Sprint/Nextel also charges \$15 per line, which would be an annual cost of \$161,640. The Blackberry phones will also incur monthly access as well as data usage fees. With a phone plan this cost is \$63.74 per Blackberry and would cost the City \$120,086 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s

police force. This cost is \$30 per month for 40MB. The total cost of Sprint/Nextel would be \$519,269, which is a savings of \$182,359 from the original estimated cost of \$701,628

Alltel does not offer a group pooling rate, therefore is the city would want to take advantage of the pooling it would still need to manage the plans for each of the phones. If a phone is to be used in a pooling plan than there is a monthly cost of \$39.99 and each phone receives a 600-minute allowance. In total this would be \$430,932 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Alltel charges a fee of \$34.95 per Blackberry and would cost the City \$65,846 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$50 per month for 40MB. The total cost of Alltel would be \$739,535 for an increased cost of \$37,907 from the original estimated cost of \$701,628.

Verizon has a pooling plan that has a standard plan rate of \$27.99 and an added fee of \$2 per phone if that phone is participating in a pooling of minutes. With Verizon each phone would have an allowance of 300 minutes. The annual cost to receive this option for each of the 898 phones would be \$323,172. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and “pocketcops” for the City’s police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$550,344 for an annual savings of \$151,284 from the original estimated cost of \$701,628.

Current Information Gathered by City of Saint Paul's Human Resources Department

Total Cell Phones	741	current estimated cost	\$	701,628
Total Blackberrys	157			
Total phones	<u>898</u>			

Flat Rate Pricing

	Sprint/Nextel		Alltel		Unicel		Verizon	
cost per line	\$	10.50	\$	7.00	\$	11.00	\$	27.99
cost for phone lines		113,148		75,432		118,536		301,620
\$.08/minute @300 minutes/phone		258,624		258,624		258,624		
nights & weekends		40,410		53,880	included		included	
mobile to mobile		40,410		107,760	included		included	
Unlimited data usage	N/A		N/A			65,940	N/A	
Blackberry with data/access w/40MB		120,086		65,846		-		37,680
Laptop connect		145,751		242,757		223,560		189,491
	\$	718,440	\$	804,306	\$	666,671	\$	528,820
potential savings	\$	(16,812)	\$	(102,678)	\$	34,957	\$	172,808

Summary of Flat Rate Pricing Analysis:

The flat rate pricing analysis takes into four major carriers in the Saint Paul area (Sprint/Nextel, Alltel, Unicel, and Verizon). The analysis used data arrived from the following sources:

information gathered by the City of Saint Paul's Human Resources Department and from the contracts of the four various carriers.

Sprint /Nextel has a charge of \$10.50 per line. This would result in a cost of \$113,148 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unlike the pooled minute options, which include the basic features such as nights & weekends and mobile-to-mobile, flat rate pricing charges more for these options. Sprint/Nextel charges \$3.73 for each option and to have both of these options on all phones would cost the City \$40,410 per option annually. The same costs for data and access on the Blackberry phones as well as the laptop connections would be the same as the pooling options and would annually cost \$120,086 and \$145,751 respectively. The total cost of Sprint/Nextel would be \$718,440 for an increased cost of \$16,812 from the original estimated cost of \$701,628.

Alltel charges \$7 per line. This would result in a cost of \$75,432 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unlike the pooled minute options, which include the basic features such as nights & weekends and mobile to mobile, flat rate pricing charges more for these options. Alltel charges \$5 for nights & weekends and \$10 for mobile to mobile. These costs would be \$53,880 for nights and weekends and \$107,760 for mobile to mobile if each phone were to have the options. The same costs for data and access on the Blackberry phones as well as the laptop connections would be the same as the pooling options and would annually cost \$65,846 and \$242,757 respectively. The total cost of Alltel would be \$804,306 for an increased cost of \$102,678 from the original estimated cost of \$701,628.

Unicel charges \$11 per line. This would result in a cost of \$118,536 for the 898 phones. Under the flat rate pricing, they charge \$.08 a minute. If each phone used 300 minutes per phone this cost would be \$258,624 annually. Unicel does include mobile to mobile and nights & weekends in their costs per line. The Blackberry phones will also incur monthly access as well as data usage fees. Unicel charges a fee of \$35 per Blackberry and would cost the City \$65,940 for unlimited usage. The last charge is in relation to the connection of the 405 laptops and "pocketcops" for the City's police force. This cost is \$46 per month for 40MB. The total cost of Unicel would be \$666,671 for an annual savings of \$34,597 from the original estimated cost of \$701,628.

Verizon does not have a flat rate pricing where they charge a cost per line then a cost per minute. There option that is closest to this would be the one similar to the citywide pooling option that is set at 300 minutes for \$27.99. Without the \$2 fee per phone included in a pooling plan, this cost then would be \$310,620 per year. The Blackberry phones will also incur monthly access as well as data usage fees. Verizon charges a fee of \$20 per Blackberry and would cost the City \$37,680 annually. The last charge is in relation to the connection of the 405 laptops and "pocketcops" for the City's police force. This cost is \$38.99 per month for 40MB. The total cost of Verizon would be \$528,820 for an annual savings of \$172,808 from the original estimated cost of \$701,628

Appendices

Appendix 1

SPFD Training Activities (Partial List)

Training Subject	Type of training (e-learning, classroom, field)	Is this training done by a vendor or in-house	Name of Vendor or Product	Length and Number of lessons (ex: two 4 hour lessons)	Frequency of lessons (once per year, once per career, etc.)	Is this training required to: perform basic job functions, abide by regulations, or for career development?	Cost of training
Vehicle Extrication	Both	Vendor	Century College	36 four hour lessons		Job Functions	\$60,000
Recruit Academy	Both	Both	Hennepin Technical College	12-13 Weeks 8 hour days	~Annually	Job Functions	\$1,700/student
Defensive Driving	Both	Vendor	Dakota County College	One 8 hour day	Recruits, new drivers	Job Functions	\$150/student
Command Courses	Mostly classroom	Government	National Fire Academy	2-3 Weeks 8 hour days	3-6 members/year	Advanced Job functions and career development	Free

Appendix 2

Training Vendor RFP Scorecard

RFP SCORECARD	Reviewer: “Initials”	Date: 12/1/09	Vendor: A	Training: AA
Evaluation Criteria	Weighting	Score	Points	Notes
General ledger	3	3	9	good GL
Accounts payable	3	3	9	strong AP
Purchase order	3	3	9	excellent PO
Accounts receivable	3	3	9	strong AR
Sales order	3	2	6	
Invoicing	3	2	6	
Job costing	3	0	0	no job costing
Fixed assets	2	1	2	limited FA
Payroll	3	3	9	good payroll
Employee expenses	3	2	6	
HR	3	2	6	
Recruitment	3	2	6	
Time and attendance	3	2	6	
Absence management	3	2	6	
Talent management	3	2	6	
Training	3	2	6	
Health and Safety	2	0	0	no H&S
certification	3	3	9	good
Workflow	3	3	9	good
Reporting and analytics	3	2	6	
staff	3	2	6	
delivery	3	2	6	
materials	3	2	6	
TOTAL SCORE		48	143	
MAXIMUM SCORE		69	207	
Key				
Evaluation criteria = your outline requirements				
Requirement weighting = Essential (3), Desirable (2), Nice to have (1)				
Evaluation score = based upon reviewing and analyzing the RFP response				
0 = does not meet requirements				
1 = partially meets requirements				
2 = meets requirements				
3 = exceeds requirements				
Points = weighting x evaluation score				

Appendix 3

Training Vendor Decision Matrix

		Vendor: A	Vendor: A	Vendor: B	Vendor: B	Vendor: C	Vendor: C
Evaluation Criteria	Weighting	Score	Points	Score	Points	Score	Points
General ledger	3	3	9	3	9	3	9
Accounts payable	3	3	9	2	6	3	9
Purchase order	3	3	9	2	6	2	6
Accounts receivable	3	3	9	2	6	2	6
Sales order	3	2	6	2	6	2	6
Invoicing	3	2	6	2	6	2	6
Job costing	3	0	0	2	6	1	3
Fixed assets	2	1	2	2	4	2	4
Payroll	3	3	9	2	6	2	6
Employee expenses	3	2	6	2	6	0	0
HR	3	2	6	2	6	2	6
Recruitment	3	2	6	2	6	2	6
Time and attendance	3	2	6	2	6	2	6
Absence management	3	2	6	2	6	2	6
Talent management	3	2	6	2	6	2	6
Training	3	2	6	3	9	1	3
Health and safety	2	0	0	3	6	1	2
Certification	3	3	9	2	6	1	3
Workflow	3	3	9	2	6	1	3
Reporting and analytics	3	2	6	2	6	1	3
delivery	3	2	6	2	6	2	6
staff	3	2	6	2	6	2	6
materials	3	2	6	2	6	2	6
TOTAL SCORE		48	143	49	142	40	117
MAXIMUM SCORE		69	207	69	207	69	207

Appendix 4

Training Delivery Methods Comparison

	Multimedia							
	CBT	CD-ROM	Internet	Intranet	E-learning	Distance Learning	Intelligent Tutoring	Virtual Reality
Learning Outcome								
Verbal Information	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intellectual skills	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive strategies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Attitudes	No	Yes	No	No	Yes	No	No	No
Motor skills	No	No	No	No	No	No	Yes	Yes
Learning Environment								
Clear objective	Medium	High	High	High	High	Medium	High	High
Practice	Medium	High	Medium	Medium	High	Low	High	High
Meaningfulness	Medium	High	High	High	High	Medium	High	High
Feedback	Medium	High	Medium	Medium	High	Low	High	High
Observe and interact with others	Low	High	Medium	Medium	High	Low	Low	Low
Transfer of Training	Medium	High	Medium	Medium	High	Low	High	High
Cost								
Development	High	High	High	High	High	Medium	High	High
Administrative	Low	Low	Low	Low	Low	Low	Low	Low
Effectiveness	Medium	High	?	?	?	Medium	?	High

Source: Blanchard, N., & Thacker, J. (2009). *Effective Training: Systems, Strategies, and Practice*. Burr Ridge, IL: McGraw Hill

Appendix 5

Roles and Responsibilities

Acquisition Phase/ Function	CFO	CIO	IRB	GM	PM	COTR	CO	Acq Pln	Perf Meas	Analysis Group
Strategic Planning										
Modernization Blueprint	A	A	A	R						A
Annual performance plan	A	A		R					A	A
Performance objectives	A	A		R					A	A
General measurement strategy	A	A		R					A	A
Modular Project Structure	A	R	A	A						
Architecture Plan and Standards	A	R	A	A						
Modular Resourcing Strategy							R	A	A	
Investment Review										
Issue Project Request	A	A		R						A
IRB Review / Approval			R					A		A
Develop Business Case	A	A		R				A		A
Final IRB Review / Approval			R							A
Initiate Budget Request	A			R						
Project Initiation										
Designate PM	A	A		R						
Designate and initiate IPT	A	A		R	A		A	A	A	
Requirements Analysis										
Market Research—Technical		A			R		A	A	A	
Market Research—Business		A			A		R	A	A	
Alternatives Analysis		A			R		A	A		
Cost Benefit Analysis		A			R		A	A		
Risk Management Plan		A		A	R			A		
Acquisition Plan										
Acquisition Strategy					A		R	A	A	
Contract Type										
Milestones										
Incentives										A
Source Selection Procedures		A		A	R			A		
Implementation Plan		A		A	R			A		
Pre-RFP Considerations										
Acquisition alternatives					A		A	R		
Small/Small Disadvantaged Business Considerations					A		A	R		
Publicizing Requirement					A		A	R		
Requirements Documentation										
Prepare Performance-based SOW		A		A	R		A	A	A	A
Prepare QA Plan		A		A	R		A	A	A	A
Obtain Certified Funding	A	A		A	R					
Prepare & Issue RFP / RFQ					A		R	A	A	
Prepare Evaluation Criteria					A		R			

Acquisition Phase/ Function	CFO	CIO	IRB	GM	PM	COTR	CO	Acq Pln	Perf Meas	Analysis Group
Prepare Terms and Conditions					A		R			
Prepare Contractor Incentive Clauses	A	A		A	A		R			A
Prepare and Test Pricing Models	A				A		R			
Prepare Bidders Mailing List							R			
Issue RFP/RFQ							R			
Evaluating Offers										
Technical/Management Evaluation		A		A	R		A			A
Price Evaluation	A						R		A	A
Past Performance Evaluation					A		R			
Responsibility Determination	A						R			
Source Selection										
Conduct Negotiations		A			A		R			
Source Selection “Best Value” Determination (SSA)	A	A		R	A		A			A
Award contract							R			
Obligate funds	A						R			
Contract Management										
Designate COTR				A	R		A			
Delegate Responsibilities to COTR					A		R			
Conduct post-award conference					A	A	R		A	
“Daily” contact/ “clarifications” with contractor					A	R	A		A	
Monitor contractor performance Technical, schedule and cost performance Accept deliverables Approve payments		A			A	R	A		A	A
Contract Changes										
Any Action to Change/Modify Contract Scope Price Delivery Schedule Technical Requirements/ Deliverables	A	A	A	A	A	A	R		A	A
Other Contract Changes/Mods					A	A	R		A	
Exercise contract options	A	A	A	A	A	A	R		A	A
Technology refreshment	A	A	A	A	A	A	R		A	A
Contract Closeout										
Disposal	A	A			A	A	R			
Exchange/Sale	A	A			A	A	R			
De-obligate excess funds	A				A	A	R			
Final closeout audit	A				A	A	R			

Notes from QA – This is an excellent document for suggested roles and responsibilities of various members of an Agency staff during pre- and post- award phases of a contract. This document does not include the suggested composition of an IPT/IST nor does it include the functions normally performed by an IPT.

Definition of Abbreviations used in the Matrix:

R – Responsible for completing the function
A – Assists the Responsible Party complete the function

CFO – Chief Financial Officer
CIO – Chief Information Officer
IRB – Investment Review Board
GM –General Manager
PM – Project Manager
COTR – Contracting Officer Technical Representative – now known as the COR
CO – Contracting Officer
Acq Pln – Acquisition Planning Group
Perf Meas – Performance Measurement Group
Analysis Group – Analysis Group

Source: Seven steps to performance based service Acquisition. (N.D.) Retrieved from:
https://www.acquisition.gov/comp/seven_steps/step1_define.html

Appendix 6

Below are full-length cases studies to the abridged case studies mentioned in the above text.

Appendix 6.1: New Mexico State Route 44

The State of New Mexico approached the need for widening a long corridor of NM 44 by issuing an RFP for a professional services contract. This allowed the State Highway and Transportation Department (NMSHTD) to outsource services they would have traditionally self-performed -- design, construction management and long-term pavement management. Procurement of construction was done separately under the traditional low-bid system.

By using a professional services contract to outsource design and construction management to the same company (the Project Development Contractor or PDC), the State was able to gain many of the efficiencies found in design-build projects -- flexibility, quicker construction, cost savings, and streamlined decision making. The PDC contract was awarded to Mesa, LLC, a division of Koch Materials Company, in the summer of 1998. Project design was outsourced to CH2M Hill by Mesa, while Flatiron Structures Company managed the project construction. NMSHTD required the road and pavement design to meet NMSHTD and FHWA standards. However, the PDC's designer and construction manager were given the flexibility to adapt the design to address the varying conditions along the 118-mile project. Koch Performance Roads [25] promotes a nationwide high-quality asphalt pavement, which offers a unique cost-effective approach to road building. The flexibility in design and construction management granted to the PDC was balanced by a requirement in the professional services contract that the PDC guarantee the quality of the pavement condition over time.

This guarantee took the form of a 20-year, long-term, fixed price performance-based rehabilitation and reconstruction agreement covered by \$114-million bond. During the challenging design phase and rapid construction phase of NM44, this long-term responsibility ensured that the private sector would act like an owner and the State would receive the quality it demanded. This pavement warranty agreement provides preventive maintenance and rehabilitation to keep the road above the contractually agreed specifications. These specifications include objective measurable criteria such as IRI, cracking and rutting.

The agreement also states that the warranty requirements will be waived if the level of traffic for the warranty period exceeds a cumulative 10-year design level, in this case, 4 million ESALs (Equivalent Single Axle Loads). NMSHTD has determined that the initial warranty cost of \$62 million will save the taxpayers \$89 million in maintenance cost over a 20-year period [26]. The innovative use of professional services contracting allowed the NMSHTD to enjoy many of the benefits of a design-build project approach without requiring the state to abandon the traditional low-bid method of procurement. This innovative approach has been called Design-Bid-Construction Management-Maintain (D-B-CM-M). It is estimated that innovative financing combined with the contracting approach has cut the total project time from 27 years to within 3 years. In this case, the total project time is considered the period from initial planning to completion.

Appendix 6.2: Performance Based Contracting Practices in Europe

"In June of 2001, a team comprised of Federal, State, contracting, legal, and academic representatives traveled to Europe to investigate and document innovative contract administration procedures that are employed in Europe to cope with growing transportation needs. The team traveled to Lisbon, Portugal; The Hague, Netherlands; Paris, France; and London, England. Additionally, the team met with Swedish transportation officials while in the Netherlands. The 2001 Contract Administration Scan report [33] summarizes the key findings of the scanning tour. Some of the findings are described below.

Until the late 1980s, traditional European methods of contract administration were very similar to those in the United States. Public transportation agencies retained tight control over the design and construction of the highway systems. Prescriptive specifications and low-bid procurement methods were the public sector tools of choice for procuring new works in both the United States and Europe. In the late 1980s, approximately 10 years before change occurred in the United States, European agencies began to make significant changes to contract administration techniques. Some of the most significant drivers of change in Europe included the following:

- Growing infrastructure needs
- Inadequate public funds
- Insufficient and diminishing staff
- Lack of innovation in delivery
- Slow product delivery and delays
- Cost overruns
- Adversarial relationships
- Claims-oriented environments
- Perceived lack of maintenance efficiency
- New European Union directives
- User frustration
- Political discontent

Many of the tools and techniques used in Europe can be directly and immediately applied in the United States, if legislative and political environments allow.

In the countries visited, design-build was observed to be the contracting method of choice for all projects, ranging from green-field construction to pure maintenance contracts. Where concession and public-private partnerships were studied, design-build was inherent in the process. In the UK, the Highways Agency's contracting method of choice is design-build, and it has almost completely replaced the design-bid-build method. As in the United States, there is no singularly consistent design-build contract, but more consistent characteristics are present. Design-build contracts are more consistently awarded on a best value basis. In the best value analysis, life-cycle costs are analyzed using net present value (NPV) of return on investment (ROI). The only problems with the design-build method were encountered in the UK, where it was acknowledged that the preliminary designs were carried too far, prior to tendering. The United States is lagging far behind the Europeans in design-build award procedures.

Another area where the Europeans are more efficient than the Americans is in writing outcome (value) specifications. U.S. practitioners are struggling with similar performance specifications.

In Europe, the issue of quality in design-build contracts is being dealt with through the use of 5 to 10 year warranties and 30-year concessions. The use of alternative financing, operation, and maintenance, in conjunction with design-build contracts, minimizes the need for owners to perform time-consuming and redundant quality assurance roles. In summary, the design-build techniques observed in Europe promote a level of partnering and early contractor involvement not yet witnessed in the United States.

While the United States is employing only a minimal number of quasi-public concession and private transportation projects, the European countries visited on the scan are leveraging concessions for major portions of their highway systems. A concession is identified as a system by which a public authority grants specific rights to an organization (whether private or semi-public) to construct, overhaul, maintain, and operate an infrastructure for a given period. This system is analogous to the Design-Build-Operate-Transfer model in the United States.

Portugal, for example, has gone from 431 km of concessions, in 1991, to a planned 2700 km of concessions in 2006 - representing 90 percent of its national highway network. The concession system is allowing Portugal to complete its strategic National Road Plan in 2006, where the use of traditional methods would take until 2014. Motorways in Europe utilize concessions for both construction and maintenance. Concession periods vary, but were commonly found to be 30 years.

The Dutch are promoting concession periods that equal 75 percent design life of the product. Both public organizations and concession companies are commonly using long-term warranties, but the team observed widespread use of maintenance contracts, in lieu of warranties. A variety of concession structures were observed that ranged from fully private to quasi-public and fully public entities, with varying requirements for private sector equity. Drivers for the use of concessions range from lack of public funding to a belief that private financing and maintenance deliver a higher quality product and provide benchmarks for public sector performance.

Performance contracting is in its infancy in the U.S. transportation sector, but the tools and techniques are well established in Europe. Performance contracting provides a contractor with performance specifications that must be met, by employing whatever means the contractor determines most economical. Performance contracts allow much more room for innovation through creative construction methods, lowering the overall price of a given project. Additionally, performance contracts necessitate alternative procurement and payment practices, typically utilizing past performance and end product qualities as measurements. Performance specifications are critical elements of performance contracting. In the Netherlands, the team observed some of the most extensive experience with drafting performance specifications. The Dutch are testing a series of 60 pilot projects to measure performance contracting versus traditional prescriptive methods. They utilize a unique method of defining performance specifications in five levels of requirements that range from road user wishes to requirements for basic materials and processing. Performance specifications detail both the operating level and minimum condition of the facility at the time it is returned to public ownership.

An item of concern in performance contracting in the United States is quality assurance/quality control (QA/QC). In the United States, traditional QA/QC roles and responsibilities are not effective with performance contracting. Performance contracts observed in the scan placed the responsibility for QC solely with the contractor, and the owner retained only a minimal QA role. There is use of “stop” or “control” points on projects as a means for owner QA. There are also unique processes for penalty points and quality audits in lieu of heavy owner inspection. In one instance, the owner gives the contractor yellow or red cards for quality violations, like a referee in a soccer game. One yellow card is a warning; two yellow cards, or one red card, mean that the contractor must stop work until the violation is remedied. Again, there is a greater sense of trust between the contractor and the owner than exists in the United States."

Performance Based Contracting Among Agencies in US

Examples of States and organizations that have used PBC in various service areas and have achieved some level of improved performance are:

San Diego's County Department of Health and Human Services has moved one fourth of its cost reimbursement contracts to performance-based contracts. The impact of PBC in this service includes increased accountability for service delivery and deliverables, partnership between the contractor community and state agency. Because of the impact of PBC in this department there is a drastic decrease in the number of children in substitute care that stay shorter in care services as compare with programs that use traditional contracting showing no results.

The Oklahoma Community Rehabilitation Services unit realized that there was a decreased in contractor's cost per placement from 1992 to 1977 by 51 %, the overall waiting period that clients have to be on waiting list had declined by 53% also the number of persons who never got job placement decreased by 41%.

In the Illinois Department of Children and Family Services Home Careload had increased placement from 2,411 to 5,570 in its first year and had almost doubled by the second year as a result of utilizing PBC. The agency made a change to PBC to reduce the backlog of the number of children in foster care. PBC was used to improve its performance in locating permanent homes for children in foster homes.

Arizona Division of Children, Youth and Families developed services based on deliverables and payments to case achievements. The dept changed from budget based contracts to rate base with outcomes that serve as incentives for payment. The department is expanding the use of PBC within the various departments

Source: Bettelle (2003) Performance Based Contracting for the highway construction industry: An Evaluation of the Use of Innovative Contracting and Performance Specification in Highway Construction. Retrieved from: <http://ncppp.org/resources/papers/battellereport.pdf>

Appendix 7

PERFORMANCE REQUIREMENT SUMMARY VEHICLE OPERATIONS				
Required Service	Standard	Maximum Allowable Degree of Deviation from Requirement (AQL)	Method of Surveillance	Deduction from Contract Price for Exceeding the AQL
Operate Taxi	Customer must be picked up within 4 minutes of the agreed upon time.	5%		19.2%
Operate Bus	Bus must not arrive at the stop later than scheduled time or depart earlier than schedule time plus 5 minutes.	4%		15.4%
Operate Unscheduled Bus	Bus must arrive not later than 4 minutes from agreed upon time between customer and dispatcher.	5%		3.8%

Source: Office of Federal Procurement Policy (OFPP), Office of Management and Budget, Executive Office of the president (1998) A guide to Best Practices for Performance Based Service Contracting.

Retrieved from: http://www.whitehouse.gov/omb/rewrite/procurement/pbsa/guide_pbsc.html

Appendix 8

R -- PRIVATE [CORRECTIONAL]/DETENTION SERVICES

POC: Timothy L. Parry, Contracting Officer, 202-307-0817.

The following is a Request for Comment (RFC). This synopsis is for information and planning purposes only and does not constitute a Request for Proposal. The President's fiscal year 1996 budget proposes an increase in the use of privatized corrections in the Federal Bureau of Prisons (FBOP). Specifically, the plan is to contract with private corrections concerns to operate the majority of all future Federal pretrial detention, minimum and low security [CORRECTIONAL] facilities. The [CORRECTIONAL] facilities will be Government Owned/Contractor Operated and the estimated population capacity of individual prisons is anticipated to be between 800 and 1,600 inmates. The purpose of the RFC is to afford industry an opportunity to comment on any perceived issues with regard to the privatization initiative and to allow the Government to receive the benefit of industry comments. The Government's purpose in providing an opportunity for industry comment is to identify potential problem areas, and provide alternative recommendations in order to enhance the success of the initiative. The Government believes industry feedback is important, and is receptive to any and all ideas from industry which would result in limiting unnecessarily constraining requirements, realizing cost savings, or highlighting potential technical or contractual problem areas associated with the initiative. Any comments provided should not be viewed as a vehicle for presenting a specific approach or product intended to be proposed but as an opportunity to improve an eventual solicitation package. Comments are solicited regarding the following: The FBOP is considering negotiated firm-fixed unit-price (based upon inmate man-days) Indefinite-Quantity "Performance-Based" contracts with an award or incentive fee and an objective, measurable QA surveillance plan

(the FBOP intends to follow Office of Federal Procurement Policy letter 91-2, Service Contracting),

2. Selection will be made on a best-value basis and significant emphasis will be afforded to past performance in providing [CORRECTIONAL] services as an evaluation criterion in determining award,
 3. The FBOP will require the eventual awardees to provide comprehensive [CORRECTIONAL] services including the ability to respond appropriately to emergency situations arising from within or outside the [CORRECTIONAL] facility,
 4. The FBOP will require the eventual awardees to provide comprehensive maintenance and repair of the Government Owned facility and to provide the necessary insurance/general liability coverage deemed necessary or appropriate,
 5. The FBOP may require the contractors to identify key facility management staff (i.e., Wardens and other key personnel responsible for day-to-day prison management) with initial submission of proposals,
 6. The FBOP will require the eventual awardees to provide comprehensive educational, life skills, substance abuse, recreational and similar [CORRECTIONAL] programs appropriate for an adult inmate population,
 7. Comment regarding the provision of comprehensive medical and psychiatric care to the referenced inmate population,
- Comment regarding the awardees providing a health care delivery system, which meets the current Joint Commission on Accreditation of Health Care

Organizations standard for ambulatory care facilities and the accreditation of that system subsequent to award,

9. Comment regarding the appropriate length of the start-up period between contract award and performance,

10. At various times, for various reasons, a number of prisoners may be moved between FBOP contractor managed facilities and FBOP operated facilities.

Therefore, the use of established FBOP classification, discipline, and inmate record keeping procedures will be necessary,

11. Comments, whether supportive or critical, are earnestly solicited regarding every aspect of the proposed initiative. Replies are not mandatory. Replies will be separated from, and have no bearing on, subsequent evaluation of proposals submitted in response to any resulting formal Requests for Proposals. The use of comments received from industry to complete final PWS and resulting solicitation documents will be at the discretion of the FBOP. Any subsequent solicitations will be synopsisized prior to its release. Eligibility in participating in a future acquisition does not depend upon a response to this notice. The Government will not critique a potential offeror's comments and the

RFC should not be used by offerors to market their products/services. The Government does not intend to pay for the information solicited and will not recognize any costs associated with submission of the RFC. Proprietary information is not being solicited. Information considered proprietary, if any, should be identified as such. Responses to this synopsis must be submitted in writing to the Contracting Officer at the above address no later than May 7, 1995. (0097)

U.S. Department of Justice
Federal Bureau of Prisons
Procurement and Property Branch
400 First Street, N.W.
Washington, D.C. 20534

Attention: Community Corrections Center Contracting

(*phone numbers and addresses have been updated in the event the reader would like to contact the writer.)

Source: Office of Federal Procurement Policy (OFPP), Office of Management and Budget, Executive Office of the president (1998) A guide to Best Practices for Performance Based Service Contracting.

Retrieved from: http://www.whitehouse.gov/omb/rewrite/procurement/pbsa/guide_pbpc.html

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